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RETROPERITONEAL SHORTENING OF THE ROUND LIGAMENTS*

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I take it that the following propositions are generally conceded, and are accordingly excluded from this discussion.

1. Many displacements cause no symptoms and require no treatment.
2. Many displacements cause discomforts which may be easily and completely relieved by well-fitting pessaries.
3. In many instances discomforts due to displacements could be best relieved by operation were there not complicating affections, pulmonary, cardiac, renal, thyroid, etc., which would render operation unduly hazardous. In such cases pessaries serve a useful purpose.

There remain, however, many displacements, some simple and others complicated, which require operative correction. It is to this class alone that my remarks will refer.

The last decade has done much to crystallize our views regarding the normal position of the uterus, the mechanism of posterior displacements, the rôle played by coincident affections and the relative degrees of discomfort due to each and the many ways by which displacements may be corrected, with their respective advantages and defects.

NORMAL POSITION

The normal relative positions of the uterus and vagina are rarely given in text-books of anatomy, obstetrics or gynecology. Dissections and frozen sections of the female pelvis are misleading. They are usually made after fermentation has caused distention of the alimentary canal, including the rectum. The anterior and posterior walls of the rectum are normally in contact except when gas is being expelled, or at the time of defecation. Text-book illustrations usually show the rectum enormously distended. Adapting the illustrations of four well-known text-books to the scale of a normal mature woman, we find both the rectum and the vagina inflated to a diameter of 1½ to 3 inches. This inflation of the canals occupies nearly the entire antero-posterior diameter of the pelvis. This distortion pushes the uterus and vagina forward, the illustrations making them appear almost vertical, and almost in a straight line. As they appear to be on end the uterus is raised from its normal pelvic position to become an abdominal organ.

Normally, however, the vagina is almost horizontal, runs almost directly backward, and the uterus is directed forward at an acute angle. This horizontal position exerts an important influence in preventing prolapse, whereas the vertical position favors telescoping.

We have three chief factors which prevent uterine prolapse or hernia: (1) the pelvic floor; (2) the uterine ligaments, and (3) the normal acute angle between the uterus and vagina (with the cervix as a fairly fixed point), which causes the intra-abdominal pressure exerted from above to close the vaginal slit firmly.

It is a wise provision of Nature that normally closes the oblique opening through the pelvic floor more and more tightly as intra-abdominal pressure increases. This is effected by rendering the vaginal canal and the uterus which run in opposite directions, more and more nearly parallel and horizontal. This method of closure is analogous to that of the ureter as it enters the bladder.

In order that the uterus may remain in its normal position it is necessary to maintain to a considerable degree the functional value (1) of the pelvic floor; (2) of the supporting ligaments which radiate from the cervix, and (3) of the round ligaments, which act as guy-ropes.

MECHANISM OF RETROVERSION AND OF PROLAPSE

With the cervical attachment of the base of the broad ligaments acting normally as a pivotal point, the fundus will remain forward if the round ligaments are normal. If the round ligaments are stretched (as by a fall or after delivery), however, the fundus may turn backward to any degree, though the integrity of the broad ligaments and of the pelvic floor remains unimpaired. As a matter of fact, however, posterior displacements are very often, if not usually, accentuated by an injury to the pelvic floor or by stretching of the supporting (i. e., radiating) ligaments, or by both.

Should both these supports be impaired at the same time (i. e., the pelvic floor and radiating ligaments), the direction of both the uterus and the vagina is rendered more nearly vertical and they assume more nearly a straight line. When such mechanical conditions exist, it is easy for the uterus to be telescoped into and through the vagina. Such a prolapse implies:

1. A shortening of the posterior wall of the vagina as by a perineal tear.
2. The stretching of the sacro-uterine ligaments permitting the cervix to move forward.
3. Elongation of the round ligaments permitting the fundus to tilt backward.
4. Stretching of the broad ligaments, permitting the uterus to sag downward.

The degree of prolapse and the speed with which it develops varies with the type of work and other causes for varying intra-abdominal pressure, such as straining at stool, etc.

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Sixty-First Annual Session, held at St. Louis, June, 1910. This article is part of a symposium, other articles of which appeared last week and further on in this issue.

XUM

COINCIDENT AFFECTIONS

In my experience about 70 per cent. of patients requiring operation for posterior displacements of the uterus have also suffered from associated diseases of the ovaries, tubes or appendix. Fortunately, the medical profession has emerged from that period when it was customary to attribute all discomforts of doubtful origin to the genital tract. By virtue of close scrutiny and strict adherence to the laws of logic many so-called reflex uterine pains have been reduced to their correct analysis and have assumed the concrete form of gallstones, gastric and duodenal ulcer, floating kidney, ureteritis, chronic appendicitis, hyperthyroidism, incipient tuberculosis, relaxation of the sacroiliac joints and other postural defects with consequent muscular and ligamentous strain, etc.

The medical profession and womankind owe a lasting debt of gratitude to Drs. Reynolds, Lovett, Goldthwaite and others for demonstrating the frequency with which backache is due to postural defects and rendering it easy to differentiate between the several types of pain.

Our chairman, Dr. Clark, has wisely emphasized the importance of making an itemized record of the several

Fig. 1.—Normal acute angle between the uterus and vagina. Intra-abdominal pressure, exerted from above, closes the vaginal slit firmly, thus preventing prolapse.

Fig. 2.—Cystocele and rectocele. Cervix permitted to move forward by relaxed broad and sacro-uterine ligaments. When the foregoing occurs the uterus and vagina are in approximately the same vertical line. It is then just a question of time when the uterus will telescope into and through the vagina.

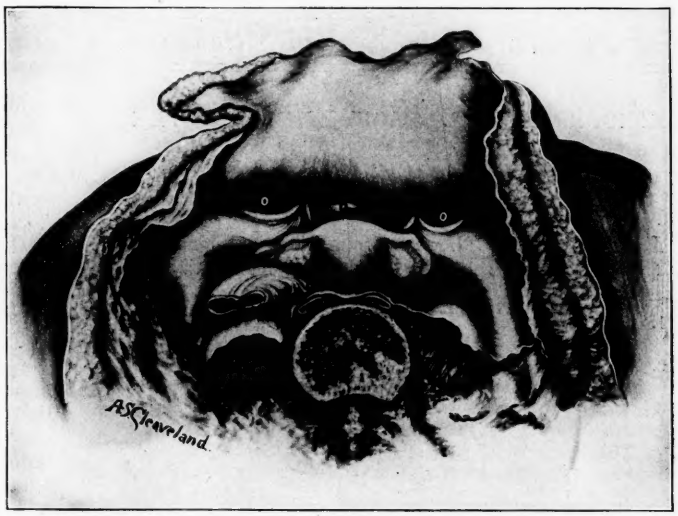

Fig. 3.—In common with other forms of transperitoneal suspension of the uterus, the Gilliam operation leaves firm bands of tissue stretching across the free abdominal cavity. R. L., round ligaments stretching across the free abdominal cavity, leaving three openings (O), through which it is possible for a loop of intestine to slip and become strangulated.

Fig. 4.—If by chance the ligaments should be overshortened and the fundus held in contact with the abdominal incision, the two surfaces become adherent. A suspensory ligament would be added and we would have four openings through which an intestine might slip and become strangulated. R. L., overshortened round ligaments and resulting suspensory ligaments (S. L.) which stretch across the free abdominal cavity, leaving four openings (O) through which an intestine might slip and become strangulated.

disease conditions affecting the individual patient; of the percentage in which they contribute to her discomforts, and of the extent to which each may probably be relieved by the proposed plan of treatment.

In this day of safe surgery, many people expect too much from operations and one will reduce the frequency and degree of disappointment if he strives to tell the individual patient beforehand just which of her discomforts may *not* be relieved by the operation. This

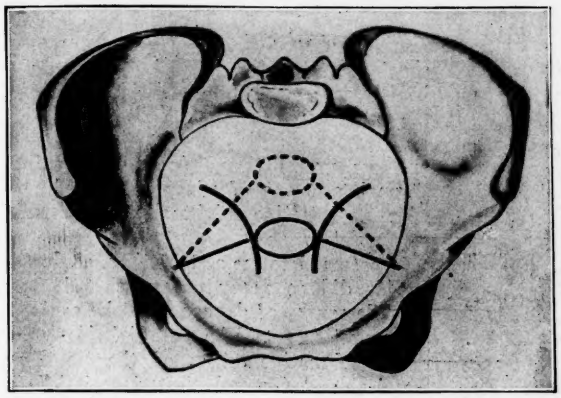

Fig. 5.—Heavy straight lines indicate normal direction of round ligaments. Dotted lines show the slight degree of stretching which will permit the uterus to become retroverted.

Fig. 6.—Heavy lines represent the shortened round ligament, which is directed forward. Dotted lines represent the marked stretching of the transplanted round ligaments that must take place before retroversion can occur.

enables the patient to decide judiciously regarding a plan of treatment.

OPERATIVE CORRECTION

It is needless to review here the evolution of the various procedures or to enumerate the several operations and modifications which hold the uterus forward. Each of the several recognized avenues for surgical correction has its advocates who have modified the following types of operation:

1. Inguinal shortening of the round ligaments (Alexander, Edebohls, Martin, Goldspohn).
2. Vaginal fixation of the uterus and vaginal shortening of the round ligaments (Goffe, Schuching, Duhrssen, Maskenrodt, Vineberg, Reed, Wertheim).
3. Intra-abdominal shortening of the round ligaments (Polk, Wylie, Dudley, Mann, Bissell, Morris, Baldy).
4. Attachment of round ligaments posterior to the uterus (Webster and Baldy).
5. Attaching the uterus to the anterior abdominal wall firmly, loosely, indirectly (Kelly, Fowler, Martin, Dorsett).
6. Transperitoneal shortening of the round ligaments (Olshausen, Ferguson, Beck, Gilliam, Martin, Campbell, McGannon).
7. Retroperitoneal shortening of the round ligaments (Ferguson, Noble, Simpson, Montgomery, Mayo, Peters, Barrett).
8. Shortening of the sacro-uterine ligaments through the abdomen or vagina (Bovée, Bishop, Stoner, Young).
9. Transverse attachment of the base of the broad ligaments in front of the cervix.
10. Intraperitoneal shortening of the round and broad ligaments (Coffey).

The uterus may be held forward by any one of several satisfactory methods. In order that it may remain in its normal position, it is necessary to maintain, to a considerable degree, the functional value, first, of the pelvic floor; second, of the supporting ligaments which radiate about the cervix; and third, of the round ligaments which act as guy-ropes. I take it that correction of mechanical defects of any of these structures constitutes an essential part in the several operations considered in this symposium.

The principles of safe and effective correction are simple. They not only take into consideration the normal

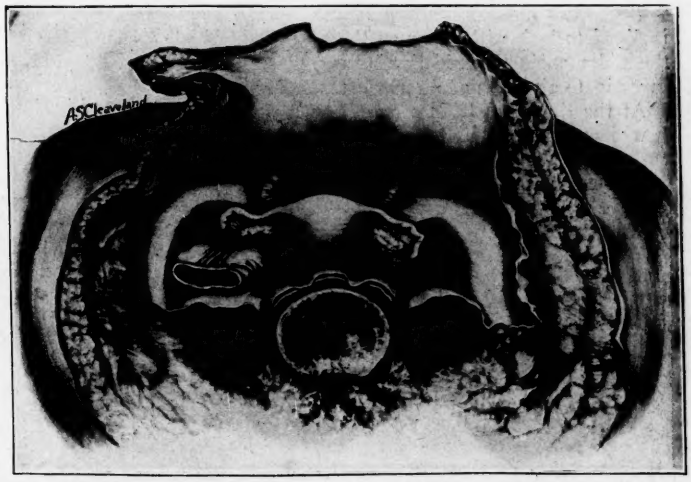

Fig. 7.—Uterus held in normal position by ligaments shortened and directed forward behind the parietal peritoneum (P).

position of the genital organs and the mechanism of displacements, but also the existence of other pelvic viscera (intestines, bladder, ureters) and the accidents common to them. The value of an otherwise satisfactory operation may be impaired by a considerable percentage of failures; by interfering with the function of reproduction; by causing considerable pain; by leaving bands of adhesions stretched across the free abdominal cavity; by entailing too great a risk to life or by frequently substituting other pathologic conditions which are themselves a source of considerable inconvenience.

It has always seemed to me that when skill, technic, facilities and other conditions justify elective operations, the mere fact of opening the abdomen does not necessarily entail serious risk. When the abdomen is opened, one can occasionally detect and correct associated troubles which would otherwise continue to cause discomfort. For these and other reasons, I am inclined to look with favor on the operations which open the abdomen in the mid line, thus making it possible to investigate all areas of discomfort.

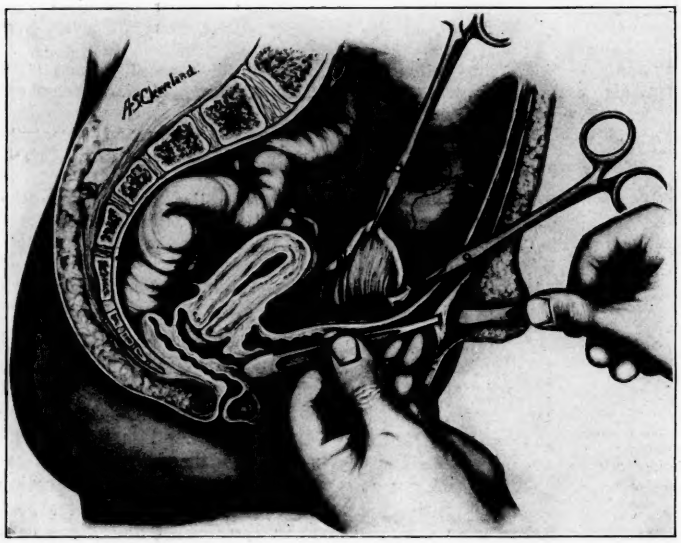

Fig. 8.—First step in retroperitoneal shortening of round ligaments. Landmarks are fixed by guide forceps preparatory to passing curved forceps in manner suggested and practiced by Drs. Charles H. Mayo and Barrett. R. L., round ligament grasped about 1½ inches from uterus. P., parietal peritoneum overlying internal ring picked up, as suggested by Dr. S. A. Chalfant.

At the time the Gilliam operation was first proposed, I was much impressed by the fact that if considered from the standpoint of the genital tract alone, it was simple and based on effective mechanical principles. The strong part of the round ligaments was used.

The ligaments were directed forward thereby giving them greater retaining power. The effect of that manner of attaching the ligaments was not to suspend the uterus, but to keep the fundus from rising and describing its backward arc of a circle.

The shortened ligaments would undoubtedly undergo the same changes of hypertrophy and involution common to normal ligaments in the course of gestation and the puerperium. Thus far the operation was ideal.

But in common with other forms of transperitoneal suspension, firm bands of tissue were stretched across the free abdominal cavity.

If by chance the ligaments were overshortened, and the fundus of the uterus held in contact with the abdominal incision, the fundus would become adherent.

A suspensory ligament would be added, and we would then have four openings through any one of which it seemed possible an intestine might slip and become strangulated.

It occurred to me at that time, as doubtless it did to many others, that if this possible source of danger could be avoided, the operation would be well-nigh ideal. At the Cincinnati meeting of the Southern Surgical and Gynecological Association in November, 1902, three papers were presented, each describing a method of utilizing the strong points of the Gilliam operation but obviating its dangers by effecting the shortening and transplantation beneath the parietal peritoneum. The first of these papers was read by Dr. A. H. Ferguson of Chicago; the second by Dr. George Noble of Atlanta, and in the third, I presented a preliminary report regarding the technic of a similar retroperitoneal operation.

The underlying principles of my operation were then described as follows:

It consists essentially of changing the course of the round ligaments from a transverse to nearly an anteroposterior direction; in shortening the round ligaments so as to leave the distal end slack; the proximal end being used to control the movements of the uterus; finally, and especially, in effecting these changes beneath or by puckering the parietal peritoneum, thus leaving no bands of adhesions and no pockets which may strangulate an intestine. These principles have commended themselves to me as being mechanically and sur-

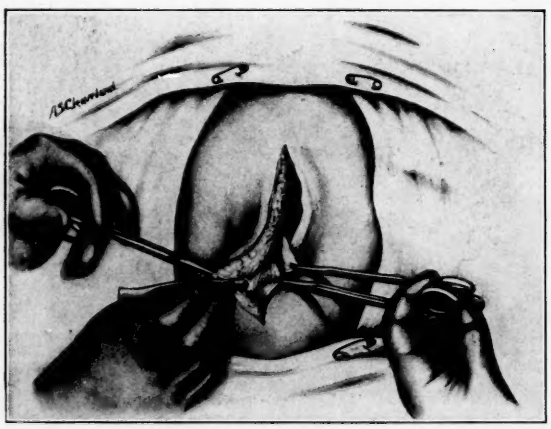

Fig. 9.—Second step: The skin is retracted and the fascia punctured about 1½ inches to the side of the lower angle of the incision.

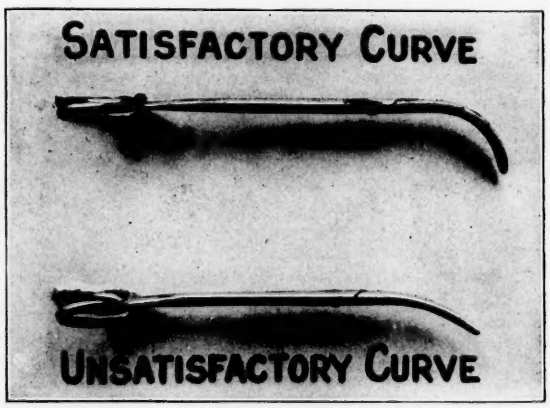

Fig. 10.—Forceps of satisfactory and unsatisfactory curve.

gically correct. Varying details of technic will readily suggest themselves to the operator.[1]

That this observation of eight years ago was fully warranted is shown by the subsequent publication of a considerable number of modifications of the three operations proposed at that meeting.

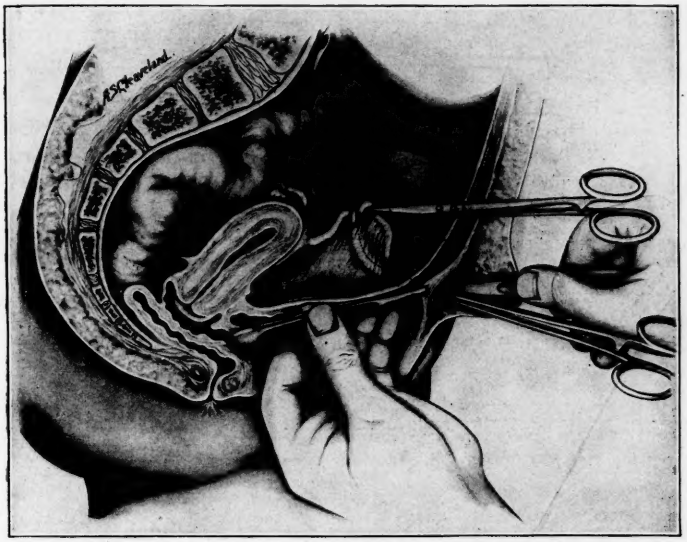

Fig. 11.—Third step: The forceps of proper curve, having passed through the fascia and obliquely through the rectus muscle, skirts beneath the parietal peritoneum to the internal abdominal ring, where it passes between the layers of the broad ligament and follows the course of the round ligament to 1½ inches of the uterus. At that point it penetrates the peritoneum, entering the peritoneal cavity for the first time, and then grasps the round ligament proximal to the guide forceps. (G. F.).

TECHNIC

My own technic has undergone several minor changes but has gradually settled down to that which we have employed for several years and considered safe, to a high degree effective, and as free as any abdominal operation of any kind can be, from the risk of adhesions. It has no bands stretching across the free abdominal cavity and carries no essential danger of strangulation. Except in two cases, it has caused no dragging sensation during pregnancy, or at any time, except during the first few days of the healing process.

Notable modifications have been made by Dr. Montgomery, Dr. Charles H. Mayo, Dr. Barrett and others. The operation as it now stands is a composite one. It consists in the following steps:

1. A median abdominal incision is made.

2. The round ligament is caught 1½ inches from the uterus and the parietal peritoneum at the point of the internal inguinal ring (Fig. 9).

3. The skin is retracted and the fascia punctured about 1½ inches to the side of the lower angle of the incision (Fig. 10).

4. A forceps of proper curve passes through this puncture, obliquely through the rectus muscle, following the method of Dr. Charles H. Mayo, and enters the broad ligament at the internal ring. It then continues to pass beneath the peritoneum and by the side of the round ligament until it reaches the hemostat holding the round ligament.

5. The curved forceps then penetrates the peritoneum and grasps the round ligament. The free margin of peritoneum is held by a hemostat during the next step.

6. The curved forceps is drawn out bringing the round ligament through the tunnel it has made.

7. The round ligament is then fastened and suspended just beneath the fascia by a linen thread which closes the rent in the fascia and at the same time holds the ligament firmly. The same process is repeated on the opposite side.

Some features and variations in technic and subsequent care which deserve comment are the following:

1. The ligament should not be attached to the upper surface of the fascia. Any permanent perforation of the fascia invites hernia.

2. The operator should actually see that his suture attaches the ligament to the fascia rather than to the fat overlying the fascia.

3. If the round ligaments are caught too near the uterus, or if they are fastened together in the mid line (either above or below the fascia), the uterus will be held in contact with the line of incision and a suspensory ligament will form. In one of my early cases that happened. The intestine became adherent, slipped behind the suspensory ligament (which should never exist) and annoying cramps followed, requiring operation.

RESULTS

1. *Mortality.*—I have done this operation with modifications, and in connection with necessary plastic and other work, about 400 times. There have been two deaths (in complicated cases), giving a mortality of 0.5 per cent. In about 70 per cent. of these cases, the appendix, tubes and ovaries, or adhesions required attention. During the last few weeks, I have gained definite information regarding about 75 per cent. of the patients. Regarding the other 25 per cent., either nothing has been heard from them or their physicians,

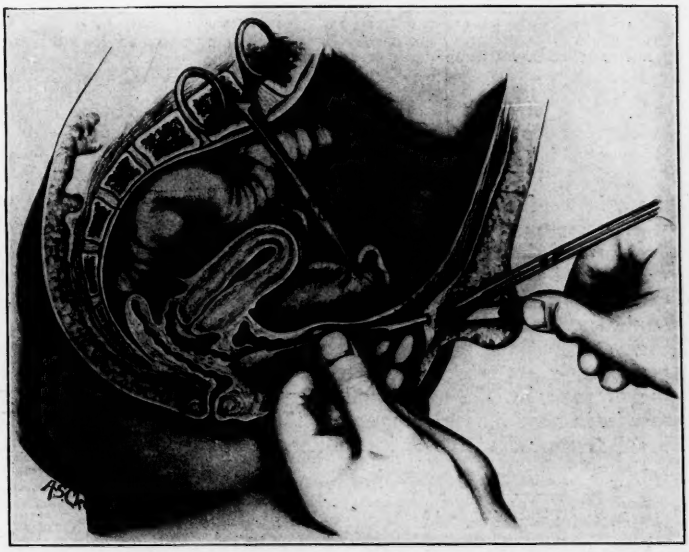

Fig. 12—Fourth step: The margin of peritoneal wound having been caught by hemostatic forceps (H), the curved forceps (C. F.) grasps the round ligament. By withdrawal of the curved forceps the round ligament is drawn out through the canal made by the forceps.

1. Am. Jour. Obst., 1903, xlvii, No. 2.

or else the doctor has reported that his information is neither recent nor exact. These facts have been obtained in two ways: first, from the medical attendants who have recently seen and examined the patients; and second, from my own notes made at the time of recent examinations. This inquiry includes:

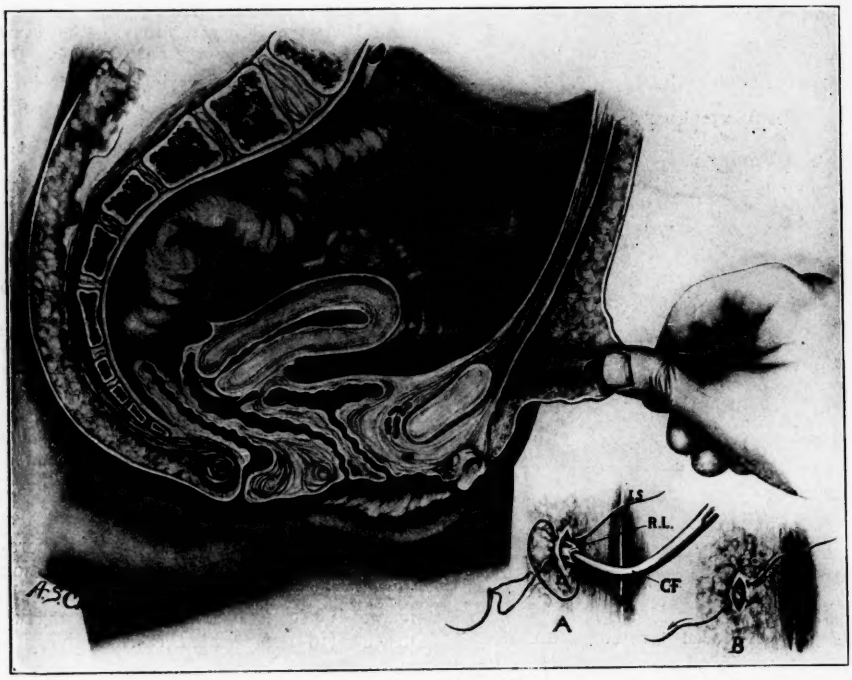

Fig. 13.—Final step: The round ligament (R. L.) is suspended beneath the fascia by a linen suture (L. S.) which also closes the rent in the fascia. The same process is repeated on the opposite side. Method of fastening shown on the margin.

2. *The Present Position of the Uterus.*—In two cases the uterus is known to be retroverted but without discomfort. Three or four uteri with congenital defects are about in the long axis of the body. Four with prolapse are known to have the fundus forward, but the cervix was not held well back by the plastic operations and shortening of the sacro-uterine ligaments. In three cases after delivery the uteri were back at about the sixth week, but were permanently corrected by the temporary use of pessaries. In all the other cases, that is, in more than 97 per cent. of those heard from, the uterus is in the normal position.

3. *Pregnancy.*—For various reasons (patients unmarried, widows, passed menopause, operation required removal of one or both adnexa, etc.), 40 per cent. of those heard from would not be expected to conceive. Of the remaining one hundred and eighty patients heard from, forty-five have conceived. One patient is now normally pregnant three months; one patient is now normally pregnant four months; two patients are now normally pregnant six months; two patients are now normally pregnant eight months, and one patient is now normally pregnant nine months.

Nine have aborted; four had aborted before; two of them probably had syphilis; in two no cause was known by the attendant. Three of these also bore one child. One had an ectopic gestation. Twenty-three bore one child at the end of normal pregnancy. Three of these also aborted once each. One of this number is reported to have died of puerperal infection seventeen days after a normal delivery. Five have had two children at the end of normal pregnancies.

4. *General Health.*—This has been very markedly improved or completely restored in 82 per cent.

Little or no improvement, 15 cases, 5 per cent.

Somewhat improved, 38 cases, 13 per cent.

Markedly improved, 128 cases, 43 per cent.

Completely restored, 117 cases, 39 per cent.

5. *Local Discomforts.*—These were very markedly or completely relieved in 84⅔ per cent.

Little or no improvement, 10 cases, 3⅓ per cent.

Required second operation for cystic ovaries after which relief was complete, 6 cases, 2 per cent.

Somewhat improved, 28 cases, 9⅓ per cent.

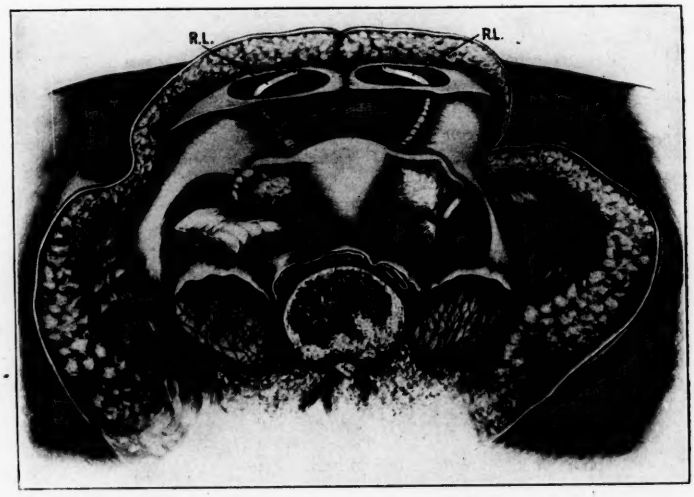

Fig. 14.—Retroperitoneal course of the round ligaments fastened beneath the fascia. P., folds of peritoneum covering the round ligament. R. L., round ligament as it lies in its oblique course through the rectus muscle and attached to the under surface of the fascia.

Decidedly improved, 72 cases, 24 per cent.

Completely relieved, 182 cases, 60⅔ per cent.

6. *New Local Discomforts.*—Here inquiry was especially made regarding dragging sensation in the new course of the ligaments. New discomforts were noted

in two, or less than 1 per cent.; *no* new local discomforts in 296, or about 99 per cent.

My percentage of partial or complete failure to hold the uterus forward has been about 2 per cent. No round-ligament operation alone will be uniformly successful under the following conditions:

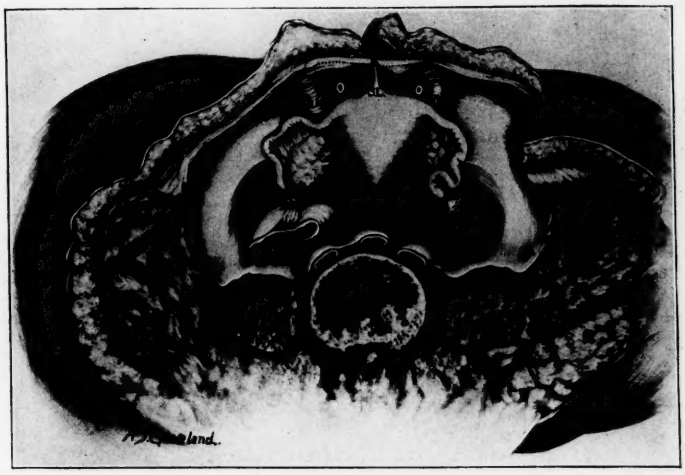

Fig. 15.—If the round ligaments are caught too near the uterus or if they are fastened together at the mid-line (either above or below the fascia) a suspensory ligament will likely be formed. Dotted lines show the retroperitoneal course of round ligaments which are fastened together in the mid-line S. L., which is the dangerous suspensory ligament so likely to form if this error is made.

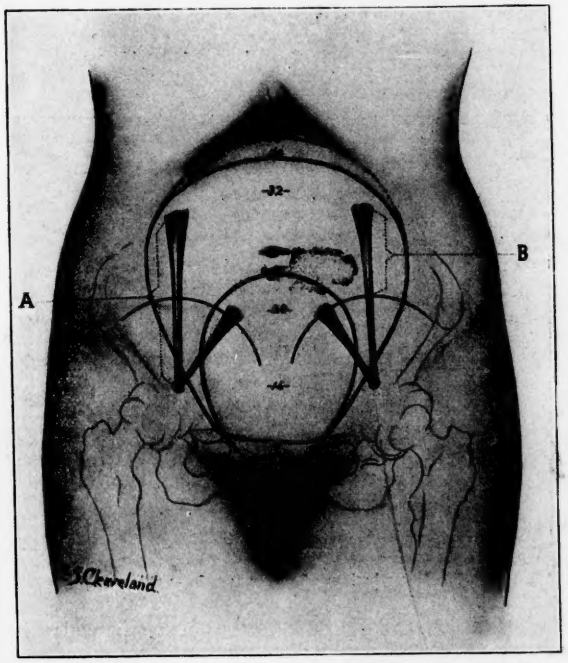

Fig. 16.—Immediately after delivery the uterus is markedly reduced in size and length. The length of the round ligaments is gradually reduced. For days they are long enough to permit the uterus to fall back into the hollow of the sacrum. If it remains back during the puerperium, the ligaments will be permanently stretched. A, total length of round ligament at the beginning of labor. B, excess of ligament at the end of labor.

1. When the ligaments are very delicate. I have had one failure due to this cause.

2. When the congenital attachment of the bladder is low and that of the sacro-uterine ligaments is high. This defect must also be corrected. I have had three or four partial failures due to this cause.

3. When the sacro-uterine ligaments and the base of the broad ligaments have been very much stretched, giving a decided prolapse. These defects should also be corrected (as, of course, the underlying lacerations). I have never had difficulty in keeping the fundus forward, but I have occasionally had an imperfect result because my attempts at shortening the sacro-uterine and the broad ligaments were not always perfectly satisfactory. I have knowledge of four cases of this kind.

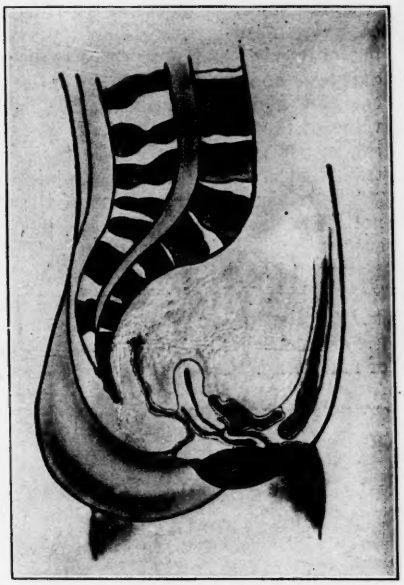

Fig. 17.—A low attachment of the bladder to the cervix, and a high attachment of the sacro-uterine ligaments. This faulty leverage must be overcome to ensure the success of any corrective measures.

The ligaments undergo the normal course of hypertrophy and involution during pregnancy and the puerperium. It is attended by slightly less risk of postpartum retroversion than follows delivery where the uterus has never previously been misplaced. This less risk is due to the anterior direction of the ligaments. Puerperal retroversions are easily and permanently corrected by the temporary use of pessaries. It, accordingly, is the imperative duty of the obstetrician to see that every uterus is in its normal position for at least three months after delivery, whether there has been previous trouble or not.

1112 Bessemer Building.

Massage in Neurasthenia.—The patients in whom massage is of most value are those feeble and emaciated individuals, asthenic in every respect, tired with the slightest effort, afflicted with atonic forms of dyspepsia in their most extreme degrees, often with flabby toneless hearts, low blood-pressure, anemic and incapable of the slightest mental exertion. The methods most suitable to neurasthenic patients are firm stroking or effleurage and kneading movements or pétrissage, the slapping, percussive and vibratory motions being omitted at first entirely, though vibration may soon be adopted for the abdomen, where it is especially useful in stimulating the intestinal muscle and the portal circulation. The mark of good massage is that the patient should feel rested and inclined to sleep, and should have a pleasant sense of warmth and comfort.—C. W. Buckley in the *Practitioner*.

THE TECHNIC OF THE EXAMINATION OF ESOPHAGEAL LESIONS*

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About 300 esophageal cases which have come under observation during the last four years have been studied not only with a view to the establishment of a correct diagnosis and productive therapeutics for the individual case, but also with the idea of determining the relative value of the clinical and technical findings. I wish in this paper to consider briefly those points which contribute to obtaining definite technical data safely.

The clinical examination is of the utmost importance not only for its intrinsic value, but as a guide to the succeeding technical procedures. The more important features to be determined in esophageal diseases by the technical methods of examination are the existence, size and relations of pockets, dilatations and strictures, and the character of the esophageal wall, notably at the seat of narrowing.

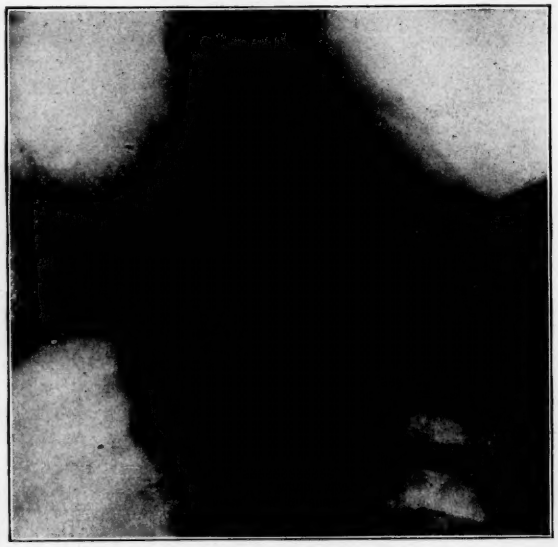


Fig. 3.—Diverticulum of esophagus, from skiagraph.

The technical methods which have proved of especial value may be grouped under three heads, namely: roentgenography, esophagoscopy and the various methods of sounding.

Roentgenography discloses thoracic masses obstructing the esophagus by pressure from without and occasionally a good shadow may be obtained of an esophageal tumor. Its chief service is that of revealing the position, shape, size and relations of diverticula and dilatations when filled with bismuth mixtures. Diverticula as a rule give shadows which are characteristic (Figs. 1 to 6). The large dilatations which occur in the upper third of the esophagus above organic strictures can be distinguished from diverticula by a tail-like portion of bismuth extending downward from the bottom of the sac (Fig. 7). However, this may be absent. Passing a small sound on a thread quickly differentiates the two conditions. Most striking are the large, irregularly spindle-shaped shadows obtained in cases of diffuse dilatation of the esophagus following spasmodic and, infrequently, organic stricture at the cardia.

In cases of cardiospasm (Figs. 8 to 19) the lower extremity of the shadow is cone-shaped and its apex corresponds (Figs. 8 and 20) to the hiatus esophagi, while in cases of organic stricture the outline is irregular and terminates above the hiatus. In most instances the dilatation extends to the upper border of the manubrium and is constricted at the root of the lung. The dilatations occurring above organic strictures are, as a rule, of

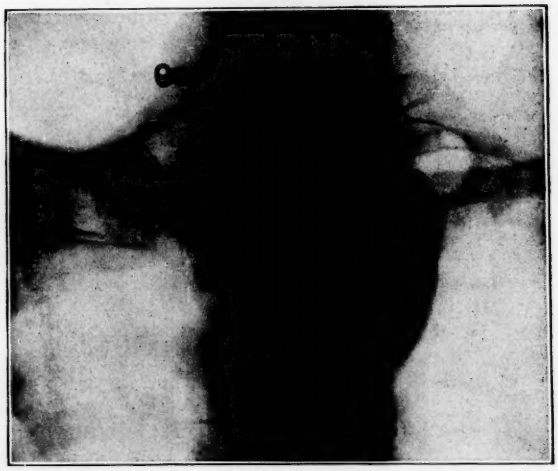


Fig. 4.—Diverticulum of esophagus, from skiagraph.

Fig. 5.—Diverticulum of esophagus, from skiagraph.

limited extent and in their lower portion irregular in outline (Fig. 21).

While the fluoroscopic pictures are interesting in studying both the normal and pathologic processes of deglutition, they add but little to the plate method in esophageal diagnosis. Mucilage of acacia has proved the most valuable vehicle in which to give bismuth. It adheres to the esophageal wall and can be readily washed out. The heavier bismuth meals and the rubber bags filled with bismuth do not give any advantage commensurate with the discomfort caused the patient. The bismuth capsule but rarely gives information not more

* Read in the Section on Surgery of the American Medical Association, at the Sixty-First Annual Session, at St. Louis, June, 1910.

* The illustrations accompanying this article were so numerous that part of them have been omitted because of lack of space. The entire article appears in the Transactions of the Section and in the author's reprints.

easily obtained by other methods of examination. In patients complaining of slight or questionable dysphagia a delay in the passage of the bismuth may indicate grounds for an esophagoscopic examination.

In esophageal work, success, from both the diagnostic and the therapeutic standpoints, depends largely on our ability to pass instruments through the esophagus.

Safety should be the keynote in esophageal technic. This is to be obtained by a clear conception of the way in which the force is being expended when introducing an esophageal instrument. The force is dissipated either in overcoming the friction of the staff on the wall of the passage or at the tip of the instrument. Obstruction at the tip is due either to pocketing or actual narrowing of the lumen in the canal. Safety resolves itself into the recognition of pockets and avoidance of undue pressure on an instrument which is pocketed.

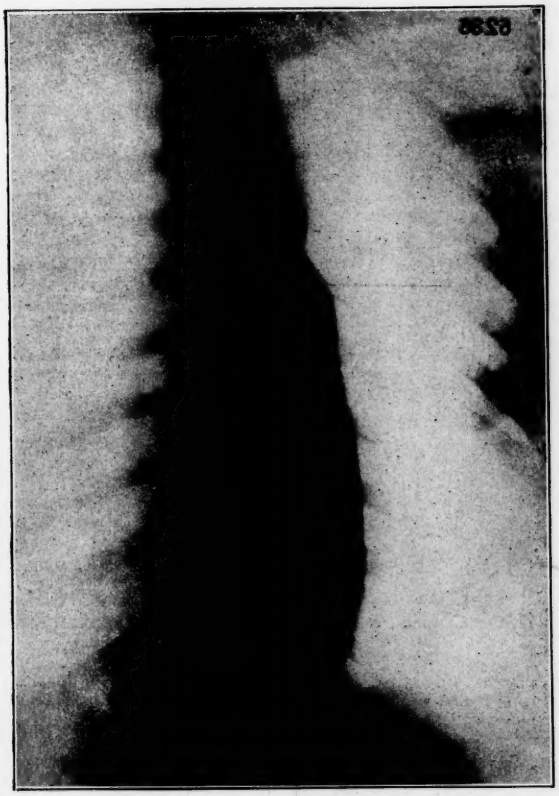


Fig. 8.—Diffuse dilatation of the esophagus in case of cardiospasm.

The tip of an esophageal instrument must be constantly under the guidance of vision or must follow a guide in such a way as to make perforation of the esophageal wall impossible. Let us conceive an instrument having the qualities of the finest silk thread at its tip, gradually merging into a rigid staff (Fig. 22). With patient persistence the thread could be passed through any patent esophagus and, if tension were maintained on the thread, the staff could be introduced into the stomach. This is mentioned to call attention quickly to the principles involved in successfully and safely introducing esophageal instruments. Such departures from this hypothetical instrument are permissible, as the rigidity of the staff, tortuosity of the canal, necessary force, etc., permit, without invalidating the essential principles. The adaptation of Mixter's method of using a silk thread as a guide has proved of inestimable value. The patient swallows six yards of silk thread. This passes down through a sufficient number of coils of intestine to prevent its withdrawal on being pulled taut.

With the whalebone staff and olive passed on a silk thread (Fig. 23*b*) we may locate pockets, determine their depth, measure the diameter of strictures, divulse them and estimate the rigidity of the esophageal wall at the seat of narrowing.

Only sufficient force to detect obstruction is permissible in advancing an unguided esophageal sound. With a silk thread that degree of force may be used which is short of carrying the thread out of its course and through the esophageal wall, or of endangering the esophagus by longitudinal traction, or of splitting the esophagus by a dilating wedge. If sufficient obstruction is encountered to make it seem possible that the thread might be carried out of its course, a piano wire (Fig. 23*e*) should first be passed on a thread and the olive passed on the wire. With the wire in place the possibility of introducing a sound is assured. When passing an olive on the wire, tension on the thread should be maintained to avoid any possibility of the tip of the wire penetrating the wall of the stomach or esophagus. Figures 24 and 23*d* show the distal portion of a piano wire guide and carrier for working the wire through a tortuous cicatricial stenosis on a thread. Various sizes of piano wire may be used and its flexibility further varied by the amount of wire exposed.

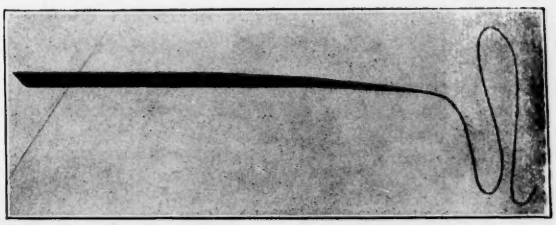
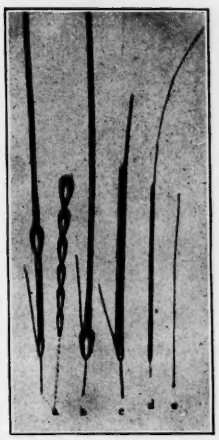


Fig. 22.—An ideal esophageal instrument, consisting of fine silk thread gradually merging into a more or less rigid instrument.



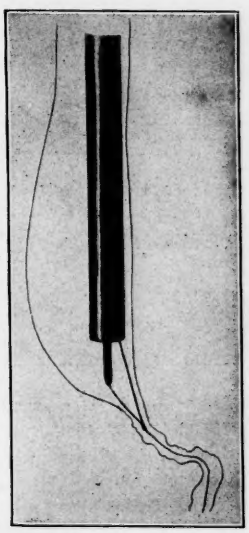
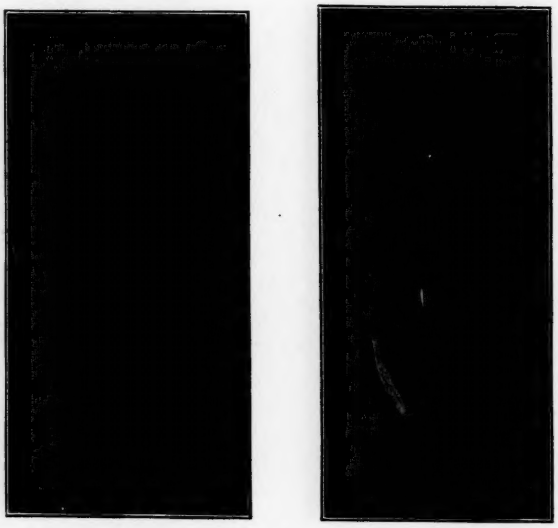


Fig. 23.—Various forms of esophageal sounds.
Fig. 24.—Piano-wire guide and carrier.

In the treatment of cicatricial stenosis the wire guide is not often necessary after the first dilatation, and the thread may be dispensed with as soon as the smaller sizes of spindles will pass without encountering obstruction at the site of the stricture. Further dilatation is carried out with the sound shown (Fig. 23*a*); the flexible, spiral metal tip acts as a guide and the stricture is dilated with the olive inserted in the staff. In those dense, extensive strictures in which sufficient dilatation cannot be obtained by dilating with a spindle, I resort to a modification of Dunham's esophagotome, which utilizes Dr. Abbe's principle of cutting partially through the distended stricture by a string pulled back and forth.

Without going into the reasons it is sufficient to state that an unguided sound will, as a rule, be pocketed if an opportunity is present. When introduced on a taut thread the sound follows the axis of the lumen of the esophagus. By varying the tension on the thread, obstruction from pocketing, and obstruction which is the result of actual narrowing of the canal, may be distinguished. The elimination of pocketing permits a more accurate determination of the diameter of the lumen and the rigidity of the esophageal wall at the seat of narrowing. Figures 25 and 26 (also 27 and 28) illustrate the use of a sound in demonstrating the existence of a pocket, its point of origin and more dependent portion. The sound is first introduced into the diverticulum until obstruction is encountered; holding the sound in place, the thread is drawn taut. Traction on the thread will now lift the sound out of the esophagus sufficiently far to bring the olive to a level with the opening into the distal portion of the esophagus. Until this point is reached the sound cannot be advanced without relaxing the thread. The same procedure, using a metal-tipped stomach-tube stiffened with a whalebone staff, permits of obtaining the contents of a diverticulum, dilatation or of the stomach, with a definite knowledge of the location of the point of the tube and a certainty that it will enter the stomach (Figs. 27 and 28).



Figs. 27 and 28.—Metal-tipped stomach-tube guided by a thread.

Crowding a sound out of a pocket, or out of a pocket and through a cardia or stricture much larger than the olive, may give the impression of having passed a narrow stricture with rigid walls. The more accurate determination of the diameter of the lumen of the canal and the rigidity of the esophageal wall at the seat of narrowing, which the elimination of pocketing permits, is well illustrated by lesions at the cardiac orifice.

The thoracic portion of the esophagus is placed nearly in the median line, but deviates to the left as it passes forward to the opening in the diaphragm. In passing an olive through the lower three inches of a normal esophagus the staff impinges on the left anterior wall and the olive is directed to the cardia by the left posterior wall. This portion of the esophageal wall presents an increasing degree of obstruction as it approaches a horizontal plane in cases of diffuse dilatation. The degree of obstruction encountered depends also on the stiffness of the staff, the size of the olive and the tonicity of the esophageal wall. A stiff staff has a tendency to penetrate the esophageal wall (Fig. 29*A*), while a relatively flexible staff conforms to the right posterior wall and the olive approaches the opening in the diaphragm at an angle with the axis of this portion of the esophagus (Fig. 29*B*). The rigidity of the esophageal wall and the ledge formed by the upper margin of the growth are also important factors in passing a sound through a carcinomatous cardia (Fig. 30).

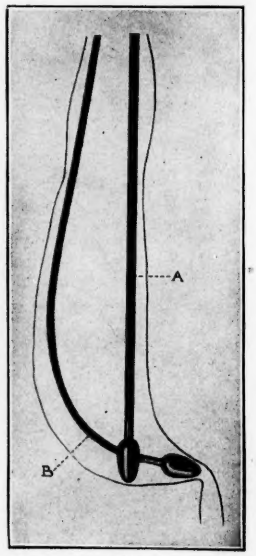


Fig. 29.

Fig. 30.

Fig. 29.—Diagram of diffuse esophageal dilatation, showing danger from stiff staff (*A*), together with use of flexible staff (*B*).
Fig. 30.—Passing a sound through a carcinomatous cardia.

In cases of diffuse dilatation following cardiospasm it is frequently impossible to pass an unguided sound through the cardia with a degree of force that is safe (thirty out of sixty-five cases which have come under my observation), while a 15-mm. olive but rarely meets marked obstruction when passed on a thread. Decided obstruction of yielding character, followed by slight hemorrhage, is usually encountered when passing a carcinomatous cardia, while in benign cicatricial stenosis the smallest sizes of olive encounter an unyielding esophageal wall.

Leaving foreign body cases out of consideration, the most essential service of esophagoscopy is that of revealing the character of the esophageal wall. It is a relatively safe procedure in the hands of one who has acquired

good technic. Safety lies in a clear conception of the way in which the force is being expended when introducing the instrument. Friction on the walls of the passage is an important element, as it makes advancement of the instrument jerky and obscures any fine sense of resistance at the tip of the instrument. I wish to call attention to Brunning's modification of Killian's esophagoscope (Fig. 31). It has a convenient and a sufficiently strong

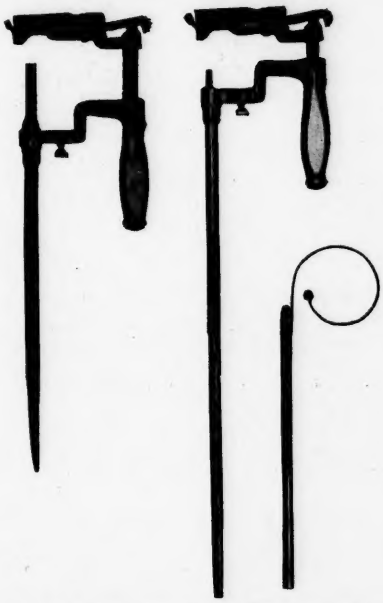


Fig. 31.—Brunning's modification of Killian's esophagoscope.

handle to permit of bringing the cardia into view, a light that rarely fails at the critical moment, a short upper section with a tip well adapted for easily passing the cricoid, and that eliminates friction in introducing a telescoping section through the lower portion of the esophagus. A satisfactory examination can, in the majority of

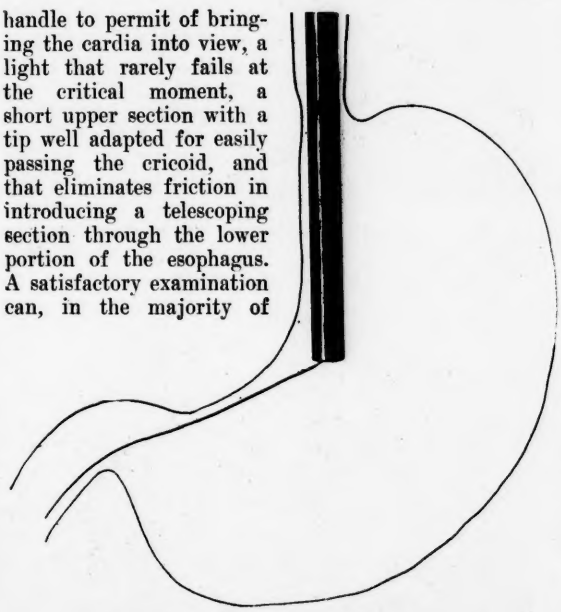


Fig. 37.—Thread used as a guide in gastroscopy.

cases, be made without an anesthetic in less than five minutes. In rare instances a guide becomes necessary to pass the cricoid, a ledge of mucous membrane, or a tortuous esophagus, the lumen of which is large enough to admit an esophagoscope. This guide must follow the lumen of the esophagus in such a way as to make perforation with its tip impossible. At its tip it should be sufficiently flexible to follow the lumen of the canal or a silk thread, and yet not double on itself. From its tip it should gradually merge into the rigid staff of the esophagoscope so as not to permit of any abrupt curve or ledge which might bruise or gouge the mucous membrane.

In esophagoscopic work one of the chief drawbacks is the constriction of the esophagus above that portion of the esophageal wall essential to our knowledge. In about 35 per cent. of the cases of carcinoma, for instance, the mucous membrane is intact at the lowest point in the esophagus which can be brought under inspection. Figure 32 (also Fig. 30) illustrates an esophagoscope obstructed by a ledge formed by infiltration beneath an intact mucous membrane. A small esophagoscope may be introduced through a preceding one, with a guide, sufficiently far to bring the involved mucous membrane into view (Figs. 33 and 34). The elimination of friction by the first instrument introduced permits of safely carrying out this procedure in a good many instances.

Occasionally the thread is a valuable guide in following the course of the esophagus with the esophagoscope. To the experienced operator this is not of much advantage, except in cases of congenital malformation and in locating the slit-like opening into the distal portion of the esophagus in cases of diverticula (Figs. 35 and 36; also 23 and 24). When drawn taut the thread impinges on that margin of the distal opening of the esophagoscope toward the lumen of the esophagus. In direct gastroscopy, orientation is much facilitated in a similar manner (Fig. 37).

ABSTRACT OF DISCUSSION

DR. WILLY MEYER, New York: The method just advanced by Dr. Plummer is an extremely valuable addition to our resources for the diagnosis and treatment of esophageal troubles, especially of diverticula. It shows how we are able to make our diagnosis even in difficult cases. At the meeting of the American Surgical Association, recently held in Washington, Dr. Charles H. Mayo told us how he, on the basis of such a definite diagnosis, has been able to extirpate two pressure diverticula in the upper portion of the esophagus.

At the German Hospital of New York, Dr. De Witt Stetten, one of the adjunct surgeons, recently operated successfully in a case of this kind and published a very interesting analysis of esophageal diverticula. This class of diverticulum is a surgical disease. What I wish to emphasize is that it is also sometimes impossible in cases of large fusiform diverticula of the esophagus, as we meet them in consequence of cardiospasm of long standing, to get along with non-operative treatment. We know that if cardiospasm has existed for a long time the wall of the esophagus is very much distended, in the shape of a lamp chimney. In such a case I am sure that it is impossible to expect the esophagus, even with the cardia treated persistently by dilatation, to be amenable to reconstruction; the muscular layer of the esophageal pouch will not get back the power of thorough contraction so as to allow fluids and solids to pass easily down into the stomach. Often it is impossible to pass the contracted cardia with any kind of instrument or thread. In such cases operative procedures must be resorted to.

At the German Hospital in New York we recently had a patient, 45 years old, who had been sick for fifteen years with what was evidently a cardiospasm at the beginning. Later, in spite of treatment, the patient was unable to swallow anything. Even fluids were regurgitated after a little while. The patient had to be treated by rectal feeding. Soon gastrostomy had to be done. Careful diagnosis with the *x*-rays showed a stricture at the cardia, with a large fusiform dilata-

tion above. The sound always was caught in the region of the cardia, and could be introduced with gentle handling for nineteen inches (sixteen inches is the average length down to the cardia). Still, with the cystoscope in the stomach, introduced through the gastric fistula, we could not see the sound. It was caught in the large esophageal pouch above the diaphragm. Therefore, basing our procedure in a patient absolutely averse to further instrumentation on the knowledge that such an esophagus cannot retract to proper size, we proceeded in the following manner: With the help of the lower half of Schede's incision through the skin and serratus muscle the left thoracic cavity was entered in the seventh intercostal space with differential pressure. The lung, which was tightly adherent to the chest wall, had to be loosened, and was then pressed upward and inward. With good illumination we found the large fusiform diverticulum covering three or four inches of the esophagus, as diagnosed, just above the cardia. It represented a large pouch. After division of the posterior continuation of the costal pleura the pneumogastrics were pushed aside and the left forefinger gradually worked around the pouch. A sound introduced from above was always caught posteriorly in a pocket near the spine. With the one hand in the thoracic cavity around the esophagus, the lower end of the sound could be guided and lifted upward with the other hand, so that it was made to pass through the cardia. I then made a plication or double fold in the esophagus by means of suture, in this way materially reducing the diameter of the fusiform dilatation in a length of three to four inches. At the end of the operation the esophagus was allowed to go back into its bed. To-day the patient is in good condition.

NOTE (Later).—At the end of June she is able to swallow everything without regurgitation.

DR. H. S. PLUMMER, Rochester, Minn.: Some sixty-five cases of diffuse dilatation of the esophagus have come under my observation, many of the patients being in the last stages of inanition, some of them right at the point of death. Many of them gave a history extending back over twelve or twenty years. I have not seen any case that was not readily, easily and completely cured by dilating the cardia.

TECHNIC FOR REMOVAL OF APPENDIX AND FIXATION OF CECUM

C. A. ROEDER, M.D.
GRAND ISLAND, NEB.

THE APPENDIX

Although removal of the appendix is generally a simple matter and is attempted by the general practitioner as well as by the surgeon, it is too often followed by annoying symptoms which are generally due to adhesions. Therefore any technic that is simpler than the average and does away with the possibility of post-operative adhesions, is the one to be adopted.

Below is a procedure adopted by George Roeder and myself in the last 100 appendectomies, which is a sufficient number, I think, on which to base an opinion. It is simple, rapid and also safe, requiring on the average ten minutes from the time the incision in the skin is made until it is closed.

Its essential features are a single purse-string, fine linen suture which is not cut until the operation is finished (Figs. 1 and 2). The suture, in passing from one side of the mesentery to the other, passes through the external coat of the base of the appendix on its mesenteric border in order to embrace an artery that might run along the surface, which will be inside the purse-string after the crushed stump of the appendix is inverted; no area of cecum is ever uncovered by peri-

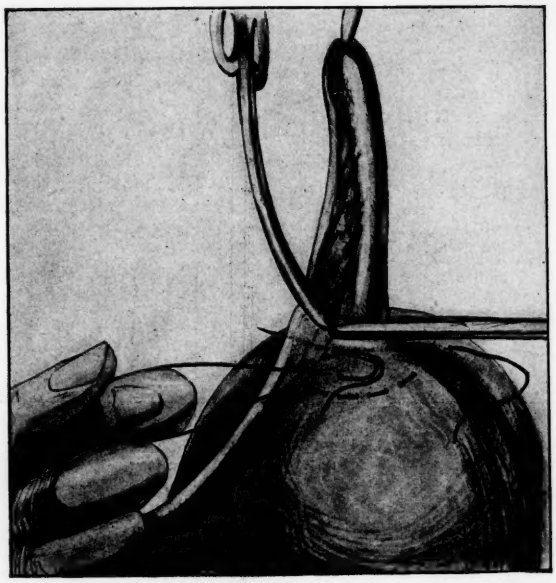


Fig. 1.—Appendix extended; crusher applied so as not to include any portion of the mesentery; artery forceps applied to the mesoappendix; purse-string suture passed through the external coat of the cecum, the needle taking a bite of the appendix through its external coat at its base on the mesenteric edge. The suture is then continued around on the other side, the loop being held by the assistant.

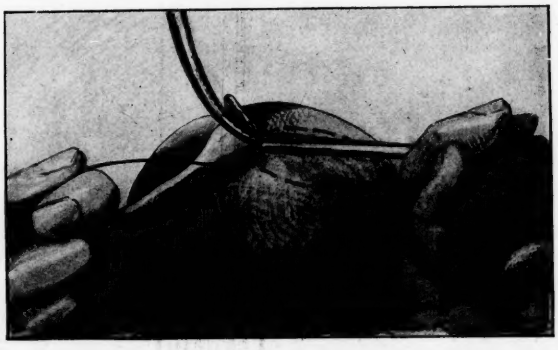


Fig. 2.—The appendix is cut flush with the crusher and the mesoappendix one-fourth inch above the artery clamp; the purse-string suture is shown completely encircling the appendix base. The crusher is now gently released and the stump is inverted.

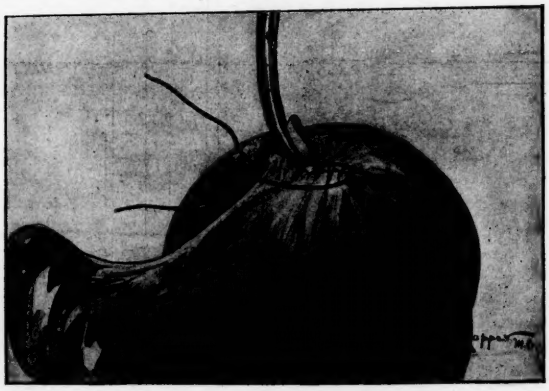


Fig. 3.—The appendix inverted; the clamp still on the mesentery; the purse-string suture is drawn together and its ends are being tied around the stump of the mesentery in the groove made by the clamp, which leaves a knob distal to it, preventing it from slipping off the mesentery and its artery.

toneum; this does away with suturing the peritoneum over the bowel as in other procedures. A second purse-string, continued from the first, inverts the stump of the ligated mesentery with its artery and buries the knot, leaving a perfectly clean peritoneum behind (Fig. 5). This second purse-string relieves tension on the first from post-operative gas, a valuable suggestion from the Mayo clinic.

We do not tie the stump; the procedure is entirely unnecessary with this method, and not without danger,

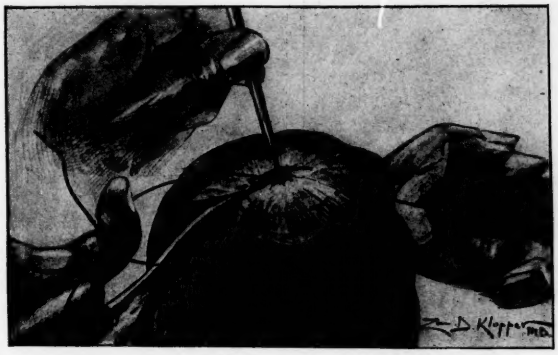


Fig. 4.—Meso-appendix tied over the point where the appendix has been inverted; no area of bowel uncovered by peritoneum. The original suture, uncut, is continued as a second purse-string suture, passing one-fourth inch beyond where it first entered the bowel and one-fourth inch internal. Note carefully the arrangement of the suture. When drawn it can readily be seen how the knot is inverted. The stump shown is the ligated meso-appendix.

as there would be a pocket formed, below by a ligated raw stump, and the purse-string above, inhibiting drainage into the bowel, which might be necessary for infected or necrosed material. Figures 4 and 5 illustrate further steps in the operation.

In some cases a short mesentery is found requiring separate ligation, and here the stump of the mesentery is covered by peritoneum from the two layers of the cut mesentery.

This operation does not interfere with the action of the ileocecal valve, as there should be no tension on the meso-appendix when finished. The second purse-string

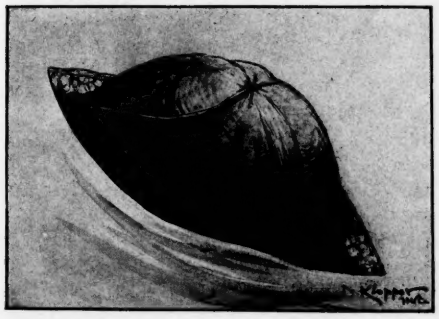


Fig. 5.—Operation completed; knot buried; remains of the meso-appendix are seen running across the cecum, with no area of bowel denuded and no portions of sutures exposed to the peritoneal cavity.

is large enough only to cover the stump of the meso-appendix with the serous coat of the cecum.

THE CECUM

The movable cecum, producing symptoms, we have anchored with excellent results by the following technic. The more dilated the pouch the more bites we take around its circumference. Without dilatation only one bite is taken.

The sutures (linen) which are inserted on the external wall in order to avoid ligating the vessels (which are in the inner layer of the mesentery), include all the coats but the mucosa, and no harm is done if they should happen to include the mucous membrane.

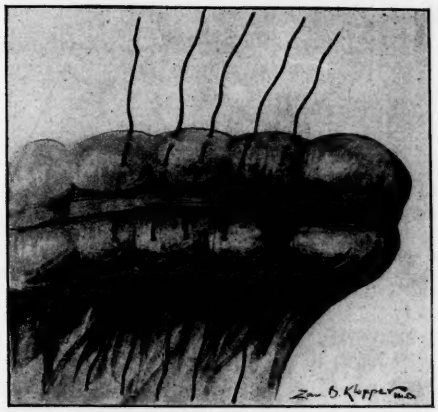


Fig. 6.—The cecum with its elongated mesentery; sutures placed. Note that the sutures have included the external longitudinal band, which gives them a firm hold. See conditions stated in text.

The sutures are then passed through the parietal peritoneum and fascia beneath, taking a bite about one-half an inch wide as close as possible to where the external coat of the mesentery of the cecum is deflected on to the abdominal wall. In this way the cecum swings from practically the same point, but the excursion is lessened. We use from three to eight rows of

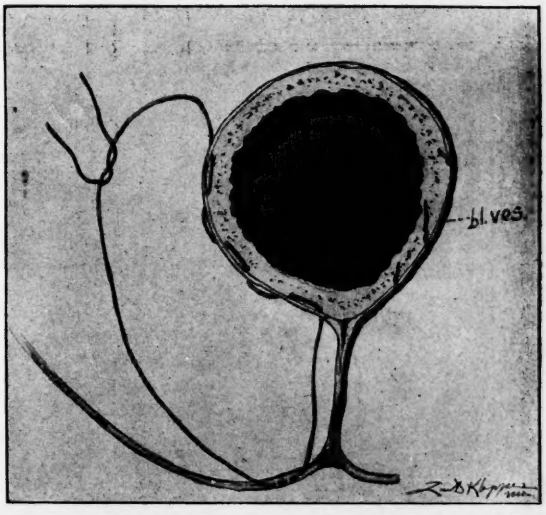


Fig. 7.—A transverse section; the suture passed but not tied. Note that the suture leaves the bowel about where the peritoneum does and takes a bite about where the latter is attached to the abdominal wall. The blood-vessels are on the other side and are never interfered with.

sutures one-half inch apart, depending on the size of the pouch and ascending colon, the degree of mobility, the age of the patient; the younger the patient the more fixation being required. The degree of constipation is another factor, as we have found often a very loose cecum in patients giving a history of constipation. Here we fix

the cecum and half of the ascending colon to give the bowel a fixed point (Figs. 6 and 7).

The appendix is often kinked, requiring removal. The kink described by Lane in the ileum should be relieved by dividing the bands producing it and fixing the cecum high enough so that the ileum approaches it from below, or at least at a right angle.

OBSERVATIONS ON TWENTY-EIGHT PATIENTS TREATED WITH THE EHRLICH-HATA REMEDY (SALVARSAN)

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CHICAGO

Notwithstanding the fact that Ehrlich says that the preliminary stage has been closed, one receives the impression from the recent literature on 606 that there are many points still to be settled in almost every phase of the work with this new remedy especially in regard to its administration, prognosis, indications and by-effects. We stand at the beginning of our work; many questions need elucidation, and it is of general interest that results should be collected from many different sources.

Fig. 1

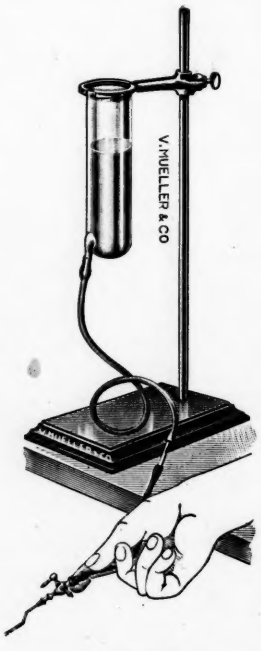

Fig. 2

Fig. 1.—Graduated pipette (A) and large 250 c.c. cylinder (B).
Fig. 2.—Intravenous apparatus.

The difficulty of following the technic according to the directions enclosed with salvarsan is apparent, for here one is told vaguely to use an intravenous method, a neutral suspension or an alkaline solution. At the present writing, the intravenous and the alkaline solution methods are the most popular in European clinics, but still each clinician is endeavoring to push his own method regardless of whether or not the other method is the superior.

From my personal experience with salvarsan (606) I believe that, while it is applicable in every case and attended by fewer symptoms afterward, the intravenous method, on account of the rapid elimination of the arsenic is greatly inferior to the intramuscular alkaline solution method of Alt and Lesser, and as a consequence should not be used in preference to all other methods. The same is equally true of the alkaline solution method.

Fig. 3.—Site for injections.

Each case should be treated individually with special reference to the following points:

1. Duration of infection.
2. Severity of infection.
3. Condition and age of the patient.

In all early infections (by this I mean those that come under observation before the Wassermann reaction is positive) the intravenous method is especially indicated. Here subsequent treatments may be given the same way on an average of every ten days for three or four times. This form of treatment applied in such a case is ideal, as the solution in the blood-stream is able to act on the spirochetes with deadly effect. In my opinion, the value of this method decreases in direct proportion to the length of time of the infection, as in the later stages the spirochetes are so securely entrenched by the pathologic-anatomic lesions that the intravenous injection has only a minimum effect on the condition. This is borne out by Miekley[1] in Lesser's clinic. However, in paresis and in malignant lues, where quick action is desired, this is the only method that should be employed.

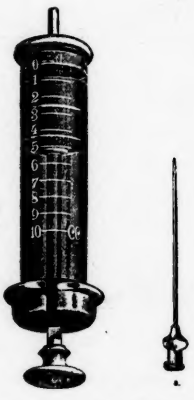

Fig. 4.—Record syringe.
Fig. 5.—Needle (21 gauge) used in Record syringe.

INTRAVENOUS TECHNIC

The instruments are one large 250 c.c. cylinder (Fig. 1, B), filter-papers, one funnel, one intravenous apparatus, like the accompanying cut (Fig. 2), one graduated pipette, (Fig. 1, A), and one stock bottle of normal

1. Miekley: Deutsch. med. Wchnschr., Oct. 13, 1910, p. 1903.

sodium hydroxid solution (4 per cent.). The instruments and filter-paper having been previously sterilized (which may be accomplished for the latter by moist heat and later drying between sterile towels), also the ampoule of salvarsan and the file by immersion in alcohol; the ampoule is dried, opened with the sterile file and the contents poured into the cylinder. As this salt goes into solution very much more readily than the earlier supplies of the substance, it is not necessary to add any glass pearls to assist in the mixing. Fifteen c.c. of hot water

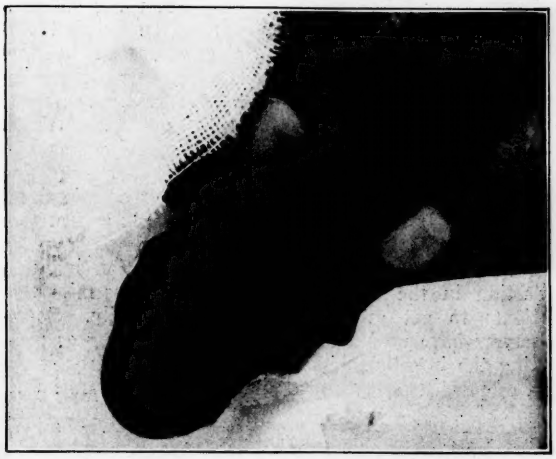

Fig. 6.—Indurated primary lesion, Nov. 3, 1910 (Case 1).

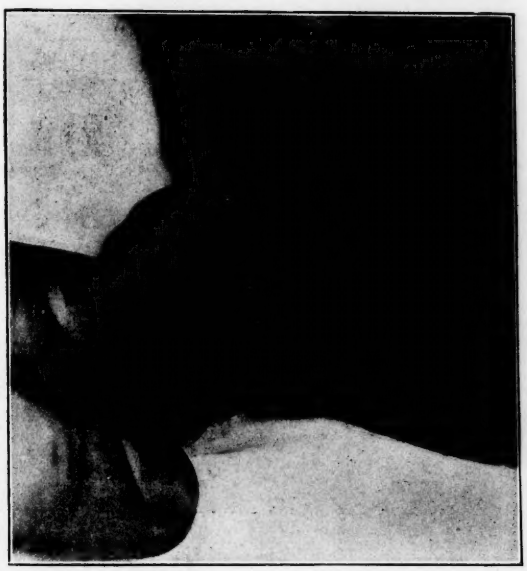

Fig. 7.—Healed lesion in 12 days, Nov. 15, 1910 (Case 1).

are added; the hotter the water, the more quickly the substance will go into solution. Next normal sodium hydroxid solution is added, about 2 c.c., and shaken thoroughly. A precipitate occurs. Then sodium hydroxid solution is added, drop by drop, the solution being shaken after each additional drop until it is absolutely clear, care being taken not to add any excess of NaOH. Next distilled water is added up to 200 c.c. The whole is then filtered into the receptacle which accompanies the intravenous apparatus. Here the outlet is in the side of the cylinder, slightly above the bottom, forming a little receptacle that holds any foreign material that may get into the cylinder, thus ensuring a more perfect solution injected. It is not necessary to use normal saline solution, as the above solution is very nearly isotonic. Next, the arm is thoroughly scrubbed

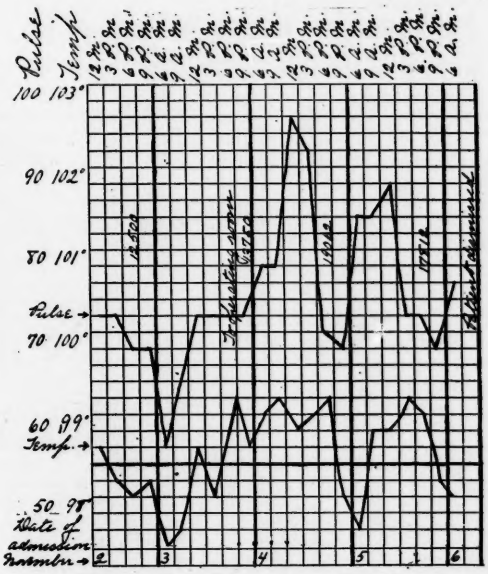

Fig. 8.—Chart showing pulse, temperature and leukocyte count of a case of primary lues (Case 1). This patient came under observation before the secondary eruption but after the Wassermann reaction was positive. The leukocyte count went to 19,062. This is the average in this class of cases. This patient has had two injections, the Wassermann becoming negative and remaining so after the fifth week.

and a constrictor is placed above the elbow. After taking care that the solution runs through the tube and needle easily and that it is not above 98.6 F., and that the air bubbles are all extracted, the needle is thrust into the vein, great care being used not to puncture the vein except in one place, for any of the solution elsewhere than in the vein will produce a marked paraphlebitis. With the two-way cock attachment, it is easy to tell when one is in the lumen of the vessel, as the blood will come pouring out. Then it is an easy matter to remove the constriction, turn the cock, and send the solution into the vein. With the cylinder raised 28 or 30 inches above the patient's head, and with an 18 or 20 gauge needle the solution will pass in easily in about seven to twelve minutes.

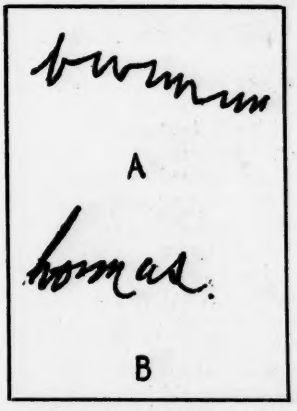

Fig. 9.—Handwriting of a patient with cerebrospinal syphilis occurring during the secondary manifestation (Case 4). A, portion of patient's name written by himself the day before injection, Oct. 17, 1910; B, same portion of patient's name written by himself two days after injection.

It is true that filtering the solution may seem to be superfluous, but often the salt agglutinates and there are small gelatinous-like particles that do not dissolve;

and again sometimes there may be some splintering of glass in opening the ampoule. Therefore, in order to carry this technic out in the best possible manner, it is necessary to have a perfect solution. When the solution has passed into the vein the wound is closed with a collodion dressing.

TECHNIC OF ALKALINE SOLUTION

The materials are: 15 c.c. graduated cylinder with glass stopper, tube of salvarsan and file, which have been previously sterilized with alcohol, one graduated pipette, stock bottle of normal sodium hydroxid solution and one 4-ounce beaker. It is best to sterilize the glassware

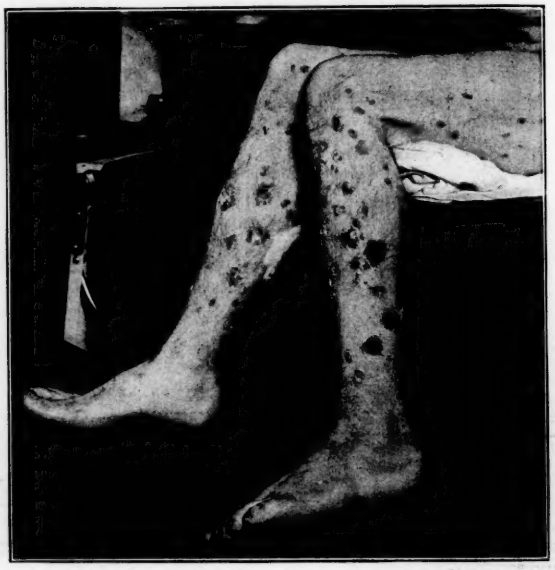

Fig. 10.—Severe secondary syphilis; papulopustular ulcerative syphilid of the legs (Case 5).

with dry heat. The salvarsan is placed in a graduated cylinder with glass stopper; 15 c.c. of hot water are added immediately; the solution is shaken vigorously until every particle of the salt is dissolved; then 2 c.c. of normal sodium hydroxid solution are added; a precipitate occurs. Then the sodium hydroxid solution is added drop by drop, being shaken vigorously after each addition, until the solution becomes perfectly clear, avoiding any excess of NaOH; then hot water is added enough to make 20 c.c. of the total solution. Then 10 c.c. of this solution are injected deeply into the buttocks on either side (Fig. 3), care being always taken to cleanse the parts with soap, water and iodin, and to cover them after the injection with absorbent cotton and flexible collodion.

The syringe used (Figs. 4 and 5) is a Record with a twenty-one gauge needle as seen in the cut. The best place to give the injection is in the outer quadrant of each buttock, carrying the needle in at a slant of 45° from above downward as is shown in the illustration, to permit the solution to gradually separate the muscles. The patient should always be put on the abdomen or side for half an hour. This is the method employed in Lesser's clinic.

DOSE

According to the printed instructions which accompany the ampoule of salvarsan, the average dose intravenously is 0.3 gm. for women and 0.4 gm. for men. This is entirely too small and will surely be followed by recurrences, as has been proved by Alt and Schreiber,[2] Miekley[1] and others. One can safely give the full contents of the ampoule, 0.6 gm., to men, and 0.5 gm. to women unless they are otherwise affected by disease. And it is safe to follow this up after four or five days with an alkaline intramuscular solution of the same strength, or again in ten days with the same strength intravenously. I have repeatedly given the injection intravenously followed by an intramuscular injection in five days, and in numerous occasions I have repeated the intramuscular injection five weeks later, using 0.6 gm.

I have sent all of my patients to the hospital for their first injections, but being encouraged by the absence of symptoms I attempted with some patients to give the second injection in my office. This, however, I find is not at all satisfactory, for in some of these cases the shock which followed the injection was extreme, and the patients were not able to go home for some hours. I have repeatedly given the injections interscapularly into the muscles of the back and at the angle of the scapulæ into the latissimus dorsi muscles, but I cannot see the superiority of this location over the injection in the buttocks, except that it permits the patients to get around a little more easily. Some observers have used a local anesthetic following or preceding the injection, but as the pain is only transitory and of much less severity than that which occurs later,

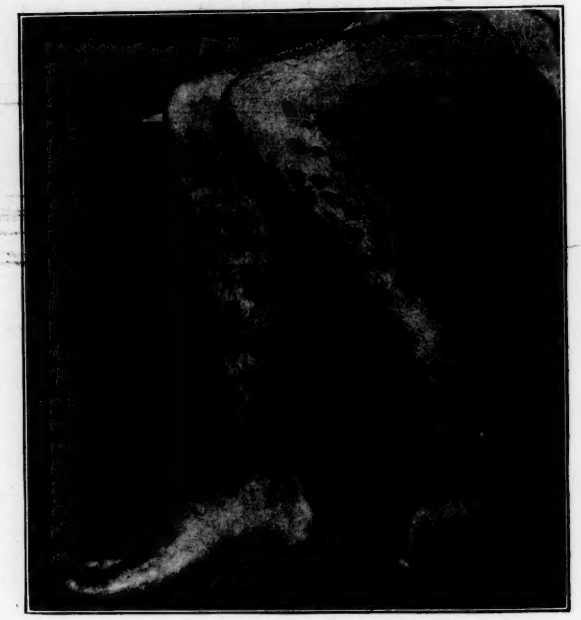

Fig. 11.—Only pigmentation and slight scaling left after thirteen days (Case 5).

I cannot see that it has very much value. Dr. Marks[3] recommended 1 c.c. of 2 per cent. phenol, to be mixed and administered with the injection. I have administered a rectal suppository containing ¼ grain of opium, which seems to act very well.

At the present time it is best to treat all nursing children by a previous full-dose injection into the mother. If this cannot be done, the alkaline solution is injected into the buttocks, and the dose should be from 0.02 to 0.03 gm., depending on the age of the patient.

2. Alt: Deutsch. med. Wchnschr., Oct. 13, 1910, p. 1896. Schreiber: Ibid, p. 1898.
3. Marks: Interstate Med. Jour., Jan. 1, 1911, p. 32.

MODE OF ACTION: INTRAVENOUS METHOD

If the solution is placed directly in the blood-stream, the specific acts immediately on any spirochetes that happen to be there and it depends on the larger or smaller number of organisms in transit through the lymphatic or blood-stream whether the symptoms which follow are more or less acute.

There is a period of quiescence following the injection for about five or six hours, then there occurs general malaise, followed by a chill, abdominal cramps and vomiting. The cramps and vomiting may be repeated and last several hours, the temperature rising sometimes to 102 or 102.5. As a rule by another six hours it is normal.

This is typical only of those cases in which the spirochetes are easily accessible. In one of my cases with an extensive papular eruption, there were only abdominal cramps and diarrhea. There is no question but that the intravenous method in proper hands is good, as it is followed by practically no unfavorable symptoms, but in order to obtain a maximum amount of effect it must be repeated again and again. The only danger lies in a puncture of the vein, with consequent paraphlebitis taking place.

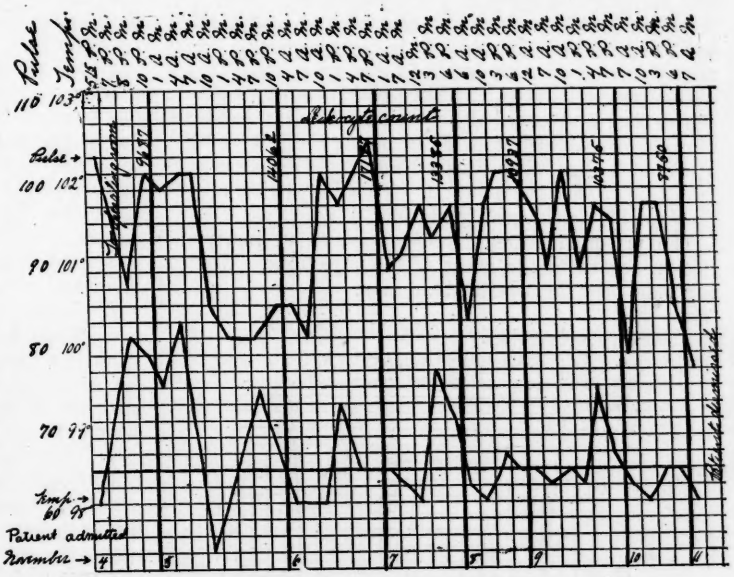

Fig. 12.—Chart showing pulse, temperature and leukocyte count in Case 5 (see Figures 10 and 11). The temperature and pulse ran a little higher here, but the leukocyte count went to 17,187. This patient has since had two injections, but fails to obtain a negative Wassermann reaction. He has since been put on mercury treatment.

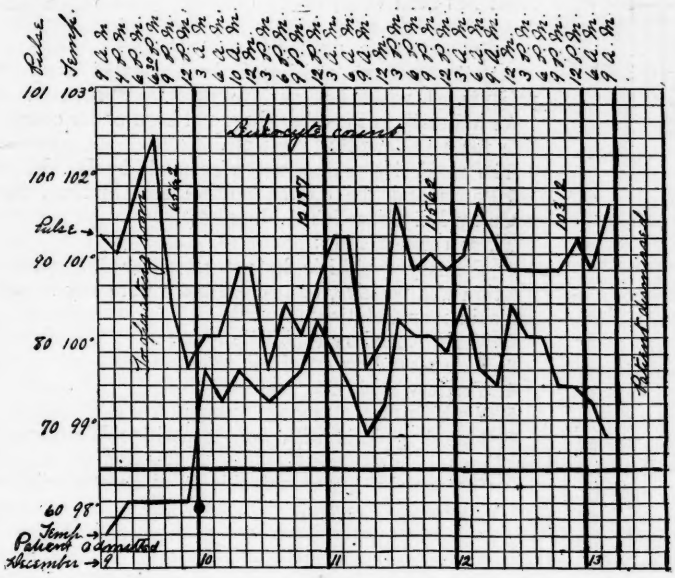

Fig. 13.—Chart showing pulse, temperature and leukocyte count of a case of Erb's spinal spastic paraplegia of syphilitic origin. This count is low, as was the case in all patients treated in whom the infection was of long duration and characterized by minimum destruction of tissue.

MODE OF ACTION: INTRAMUSCULAR METHOD

In order to avoid attacks of fainting and shock, which at times accompany the injection (I must say that this liability is greatly lessened with the newer salt, salvarsan) it is best to place the patient lying on the abdomen and always to disconnect the needle to see if there is any hemorrhage present. It has not been necessary except in a few instances to administer any opiate; and the more remote the infection, the less severe, correspondingly the reaction has been, so that in some of the tabetic patients who were treated, the local reaction was practically nil. Since I have been carrying my injection well to the outer margin of the buttocks, the ensuing neuritis has been practically absent. Frequently the pains are severe, radiating down to the foot, simulating a severe sciatica, but as a rule in several hours they pass off. When these injections were given into the muscles of the back, the referred pains in the abdomen, the arms and the hands were often very severe.

Over the site of the injection there comes an acute sensation of pain, which usually lasts about five to six hours. This is replaced by a dull sensation and a feeling of stiffness that rapidly changes to pain, reaching its maximum on the third to fifth day. Following the injection the area soon becomes boggy and red, resembling erysipelas in the severe infections, so that the patients are not able to sit down. This also does not, as a rule, reach its maximum effect until the third or fifth day.

Sweating.—This occurs in every case in which there is any systemic infection, but in none of my cases was it ever due to any extraneous organisms. It is caused by the endotoxins that are formed from the killed spirochetes. It usually begins the first night following the intramuscular injection and may continue for ten days. It usually reaches its maximum effect the third to fifth day and then gradually subsides. It is not present after the second injection in such a perceptible degree.

Using the neutral suspension, numerous cases of abscess have been reported. This is attributed either to the method of preparation, as in this way it is not easily

kept sterile, or to the fact that the salt injected subcutaneously acts as a foreign body.

In none of my cases has there been the slightest sign of abscess, but unless the strictest asepsis is carried out, this surely will happen as a complication.

As a rule the swelling subsides rapidly and is fairly well absorbed at the end of the second week. Some nodules may remain unabsorbed for many weeks. This is particularly true after the more concentrated solutions. For a time I prepared my solution with a 20 per cent. solution of sodium hydroxid, dissolving the salt in 9 c.c. of water, so that when finished the whole dose was contained in 10 c.c. of solution. This in particular was followed by considerable pain and by nodules.

The personal element, however, plays an important rôle in regard to the effect of the injections. Women as a rule, bear them better than men.

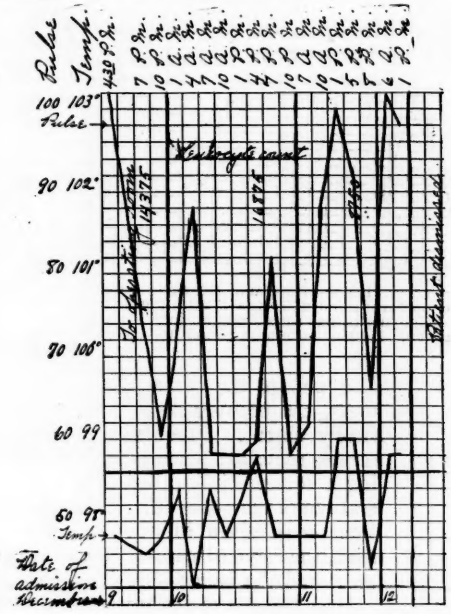

Fig. 14.—Chart showing pulse, temperature and leukocyte count in a case of latent syphilis complicating pulmonary tuberculosis. The count here is a little below average, but the local reaction was most severe. After five weeks his Wassermann reaction remains positive.

If the pain is severe, hot sitz-baths together with hot applications are of most benefit. The insomnia that follows after the injection, while at first due to the pain, is later the result of the stimulating effect of the arsenic. The general condition may remain undisturbed, though there may be loss of appetite, and malaise, but this passes off rapidly and in a week there is a wonderful stimulation (as Fritz Lesser[4] calls it, "the organotropic effect of the arsenic"). There is an increase in weight and general nutrition, including an improved blood-picture.

In a few cases there were numerous urticarial rashes after the second day. These, however, were transitory and caused practically no inconvenience.

The Herxheimer reaction was present numerous times (local irritation of spirochetal foci); but it was most marked in late secondary manifestations. In one instance, I excised a dactylitis syphilitica, believing that it contained pus, but it was nothing more than a local reaction.

4. Lesser, Fritz: Berl. klin. Wchnschr., Oct. 24, 1910, p. 1975.

Urine.—There have been no quantitative examinations made for arsenic. Albumin and casts have been found numerous times, but these were always transitory. A most careful examination of the urine was made of the patients who had received the second injection, and only in two instances were there any symptoms of renal irritation.

Temperature.—In the majority of cases the temperature was influenced but slightly, rarely going beyond one hundred degrees, often remaining perfectly normal; but occasionally there was a sharp rise, especially if the combined method had been used and the first injection had happened to kill a large number of spirochetes.

Pulse.—This varies with the degree of pain and the general condition. Of course, being a new form of treatment, the suspense and excitement often cause an unnatural rise.

Leukocyte Count.—In all cases a careful count was made from day to day and it can be safely said that there is a direct relationship between the relative number of killed spirochetes and the leukocyte count. In all cases in which the infection was recent and at all active, the leukocyte count was relatively high. In one case following an intravenous injection it went to twenty-eight thousand. Repeatedly, following the intramuscular injection, the count went from seventeen to nineteen thousand. On the other hand, in all cases in which the infection was at a minimum (this is especially true of tabetics) there was only a slight leukocytosis. As Neisser[5] has shown, there is no reaction in healthy non-syphilitic patients. We might, then, use this method in a measure to ascertain whether our treatment has been effective.

REPORT OF CASES

At the present writing I have treated sixty-two patients. I wish, however, to report on twenty-eight cases in detail, as the others have not been under observation for a sufficiently long time.

The medical examinations were made by Dr. Milton M. Portis and the ophthalmologic examinations were made by Dr. Cornelius A. Leenheer.

These cases include:

1. Primary syphilitic lesions after the Wassermann reaction was positive, but before there were any secondary skin manifestations.
2. Early secondary syphilitic lesions.
3. Late secondary syphilitic lesions.
4. Tertiary syphilitic lesions.
5. Syphilis of the nervous system.
6. Latent syphilis with only a positive Wassermann reaction.

Unfortunately, I was not able to observe a primary lesion sufficiently early to show only a negative reaction, and as a consequence I was not able to apply Ehrlich's theory of *therapia sterilisans magna* in an ideal case.

1. Primary syphilitic lesions after the Wassermann reaction was positive. In this series there are four cases.

CASE 1.—The patient, J. F., 19, single, came under observation on Oct. 31, 1910. There had been an incubation period of fifteen days. The sore had been present three weeks at the time of examination. A few spirochetes were found. The Wassermann reaction was positive.

On Nov. 3, 1910, an injection of 0.5 gm. (10 c.c. of solution) was made into each buttock. The first picture (Fig. 6) was made Nov. 3, 1910. Complete healing took place in twelve days (Fig. 7). A Wassermann examination Nov. 28, 1910, was negative. On Dec. 12, 1910, a second injection was made, 0.6 gm.

5. Neisser: Berl. klin. Wchnschr., Aug. 8, 1910, p. 1485.

in concentrated alkaline solution. On Jan. 8, 1911, Wassermann still negative. On Nov. 28, 1910, I excised the remaining sclerosis at site of the primary lesion and this was examined for spirochetes by Dr. Maximilian Herzog after Levaditi's method. His report is as follows:

"Microscopic examination showed the mass removed to be composed mostly of granulation tissue which exhibits the characteristic endo-, meso- and periphlebitic vascular changes generally so well marked in primary and secondary syphilitic lesions. No spirochetes could be found in the silvered section, however."

It is needless to say that I realize that in due course of time the spirochetes would migrate from the lesion without any treatment whatever, but we had a considerable amount of granulation tissue left at the site of the primary lesion. The Wassermann reaction was negative and it was a question whether or not any organisms remained locked in the tissue, being so insignificant as not to produce a positive Wassermann.

Iversen[6] has followed out the same idea by examining the inguinal glands for spirochetes. He examined ten patients, three to five days after treatment and although the spirochetes had been present in great numbers before the injection, they were absent afterward.

In the above case there was a more perceptible reaction following the second injection, general malaise, chilly sensations and nausea. This, I felt, was due to an anaphylactic reaction, but in the light of similar conditions in other patients, I attributed it to the action on the spirochetes with resulting endotoxemia, the general condition of the patient being wonderfully good.

CASE 2.—The patient, M. E., was given a combined treatment, intravenous injection followed in five days by an intramuscular injection. After the intravenous injection he suffered a violent attack of chills, vomiting and abdominal pains, with a temperature of 102 F., which promptly receded the following morning. In three weeks he gave a negative Wassermann reaction, which four weeks later, on Jan. 8, 1911, was still negative.

I have used the intravenous method in the other cases of this series, in none of which was the reaction so acute. This I attribute to the solution catching a large number of spirochetes in the blood-stream, as the injection was given at the time that the first eruption should make its appearance. In the other patients so treated, the eruption had been out many days. The organisms were entrenched, so to speak, in the tissues, consequently the general reaction was not so acute and characterized only by cramps and diarrhea.

Two of the patients in this series have maintained a negative Wassermann reaction; the other two still show a positive reaction. All have had two injections, and no return of symptoms.

2. Early secondaries from one to six months' duration, characterized by skin eruptions and mouth lesions. This series comprises ten cases. The oldest case is of four months' duration, the shortest six weeks. All have had a second injection from the fourth to fifth week after the first, except one case, regardless of whether their Wassermann reactions were negative or positive. In none of these cases has there been any return of external signs of lues.

CASE 3.—The patient, B. B., 18, single, was infected April 1910; chancre on left tonsil. Secondaries appeared May 7, 1910. The diagnosis was secondary lues, only manifested by external lesion in throat.

The patient was put on rubbings which were continued until July 10, at which time there were no external signs of lues. He was put on proto-iodid pills, 1/6 gr. three times a day. In September plaques appeared on both tonsils. On Oct. 17, 1910, the day before treatment, examination for spirochetes showed twenty to thirty in the field. Next morning, October 18, an injection was given, 0.5 gm. of the alkaline solution, 10 c.c. in each buttock. The second day, no spirochetes were to be found; the fourth day, complete healing. Nov. 11, 1910, the Wassermann reaction was negative; likewise on Jan. 8, 1911. Jan. 15, 1911, the injection was repeated, 0.6 gm. The patient's condition was excellent.

CASE 4.—Figure 9 shows the handwriting of a patient with cerebrospinal syphilis that occurred during the secondary manifestations. The patient was infected six months previously and at the time of his cerebrospinal disturbance he had plaques on the tongue, a discrete papular eruption and condylomata. At the time of examination, Oct. 18, 1910, he was suffering from a right hemiplegia, and ptosis of the left eye, the left side of the mouth drooped, there was a slight delirium, incoherent speech, and slight comatose condition. Spirochetes were present in the plaques, and the Wassermann reaction was positive.

The patient was given 0.6 gm. in an alkaline solution into each buttock. The temperature never went higher than 101 1/5 F., the pulse never above 90. Three weeks after injection the man walked into my office in a greatly improved condition. While he could not tell me his home address, he was perfectly able to discuss the topics of the day.

The patient's general improvement has been most striking. He had another injection of 0.6 gm. at the end of the fifth week but the Wassermann reaction still remained positive. He has since gone back to work. Dr. Hugh T. Patrick saw this patient on two different occasions, the first time two days before the first injection and the second time eight weeks later. Dr. Patrick's comment was that the patient was "altogether a different man, but obviously not yet normal."

CASE 5.—J. M., aged 28, married, was infected July 12, 1910. The patient was dissipated and his condition poor. Rubbings with mercury, and potassium iodid internally were employed. This treatment was continued until the time of injection. The Wassermann reaction was positive.

Figures 10 and 11 illustrate an extensive papulopustular ulcerative syphilid that extended over the whole body, but was most marked on the legs. The pictures were taken fourteen days apart, the first on Nov. 13, 1910. The first injection was given Nov. 14, 1910, 0.6 gm. in alkaline solution, 10 c.c. into each buttock. The second picture was taken Nov. 26, 1910. The second injection was given Dec. 11, 1910. The second Wassermann reaction, Dec. 10, 1910, was only slightly positive; the third, Jan. 15, 1911, was again positive.

Five of these patients obtained a negative Wassermann reaction from the third to the fifth week after their first injection. All were injected a second time and have remained negative up to the present writing. The other five have never obtained a negative Wassermann but have been reinjected. There has been no return of symptoms.

3. Late secondaries after the sixth month.

In this series there are eight cases; all the patients have had their infection for six months to two years. All showed either external signs of lues or mouth or throat-lesions.

CASE 6.—The second patient in this series presented plaques on the tongue. These had been present with only slight remissions for one year. The patient was injected in the morning and by afternoon there was sharp bleeding in the lesions and by the second day a thin epithelial covering had begun to form. All healing was completed in one week; at the end of three weeks there was a negative Wassermann reaction; the fifth week a positive reaction. Two days later a second injection was given; this was followed the next day by general malaise, chills, nausea and vomiting; temperature 102° F. The following morning temperature normal.

At first I attributed this also to an anaphylactic reaction, but the incubation period was too short. It was

6. Iversen: Deutsch. med. Wchnschr., Oct. 13, 1910, p. 1899.

further too late for an acute toxemia following the administration of the salvarsan. My deductions here are the following: The pathologic-anatomic lesions so securely held the spirochetes that the first injection only permitted the outer protecting wall to be influenced, while the second injection then was able to attack a large number of organisms, the patient suffering from an acute endotoxemia following the killing of so great a number. It is just this class of cases in which I believe the intravenous method to be of little value, as the remedy is eliminated before it has time to produce a maximum amount of effect.

I have not been able to obtain a negative Wassermann reaction again in this patient, but there has been absolutely no sign of any recurrence. In order that I may not lose the advantage that I have gained over the disease, I have put him on mercury treatment until such a time as I deem it expedient to repeat my salvarsan.

Another patient in this series, in whom I was able one year ago to get a negative Wassermann reaction after rubbing into him 100 grams of mercury, had an ulcerative syphilid in the right nasal opening at the time of treatment and a dactylitis of the middle finger of the left hand.

These lesions showed a beautiful Herxheimer reaction; also the site of the old chancre was affected the same way, showing again that the organisms must be well anchored in the lesion, and emphasizing how little value one can place in a single negative Wassermann.

4. Tertiary syphilis, one case.

This case presented a gumma involving the septum. Healing was prompt, although the Wassermann has still remained positive; but there has been a wonderful nutritional change, the patient gaining twenty pounds.

5. Syphilis of the nervous system.

In this series there are three cases; two cases of tabes and one of Erb's spinal spastic paralysis of syphilitic origin. One of the tabetic patients reports an improvement of pain, but there has been no subsequent Wassermann test. The other tabetic patient after two months shows a negative Wassermann reaction, with a cessation of the pain of tabetic crisis. The patient with Erb's spinal spastic paralysis of syphilitic origin also shows improvement of the vesical and rectal sense and action, lessening of rigidity in the abdominal and leg muscles, disappearance of dragging of toes, increased freedom in movement of right ankle, and improved sensation in right leg, but increased patellar reflexes in both legs and increase of ankle-clonus on right side. The pulse, temperature, and leukocyte count in this case are given in Figure 13.

6. Latent syphilis, manifested only by a positive Wassermann test.

In this series there are two cases.

In the first case there has been no change in the Wassermann reaction after six weeks, but the nutritional change is well marked. The second case was complicated by tuberculosis of the lungs. Here there was also no change in the Wassermann reaction, but nutritional change was marked. The pulse, temperature and leukocyte count are given in Figure 14.

PROGNOSIS

From the many reports that have appeared the prognosis as to the efficiency of salvarsan is good. To believe that we have a twenty-four-hour cure for syphilis is indeed a mistake, but that we have the best means yet discovered to combat syphilis is true.

Unfortunately, salvarsan has a bad heritage and still more unfortunate is the fact that it is somewhat complicated in regard to administration and as a consequence the future will undoubtedly unfold many calamities following its misuse.

That the possibility of a *therapia sterilisans magna* is not a fruitless idea of Ehrlichs is conceded by all rational syphilographers, but for its successful culmination one must see the patient extremely early, make a diagnosis before there is systemic invasion (before the Wassermann is positive), effectually destroy the lesion and give the combined treatment (intravenously and intramuscularly) at the earliest possible moment.

Unfortunately, the syphilographer does not see the larger number of cases early, and for the successful carrying out of the ideal method he will have to depend on the family doctor in order to put these cases under treatment successfully.

The longer a patient has been infected with the *Spirochæta pallida*, the less chance is there for a speedy cure. In my cases, notwithstanding the fact that symptoms disappeared, the Wassermann remained positive in all that were infected longer than six months; and any physician who tells a patient that one injection is going to rid him of his syphilis forever is guilty of gross deception. To give a patient one injection and permit him to wait, is clothing him with a false security, as his symptoms will surely return unless some other form of treatment is added.

At the present writing I am re-treating all my patients in the fifth or sixth week. In those that have gained a negative Wassermann reaction before the second injection, I stop treatment after the second injection. In those that still show a positive Wassermann reaction, I continue the treatment with mercury until such a time as I feel justified in injecting the salvarsan a third time. By so doing, I am not only holding the advantage gained by the action of salvarsan, but am continuing the treatment to the best possible advantage.

Neisser[7] says that in the present enthusiasm over salvarsan we seem to forget that we were ever able to cure syphilis with mercury, and he suggests that we use mercury as an ally to salvarsan. Even Ehrlich[8] says that the best way to combat the disease is by different kinds of treatment, the same as a general would attack a hill "from all sides."

The biologic management of the patients after treatment with salvarsan is of the greatest importance if we wish to carry them to a successful termination. In fact, it is the only method available of controlling the disease before external manifestations occur.

A patient in whom the reaction persists after treatment must be considered as not cured. If the reaction disappears we have to differentiate between two possibilities: either we may have a true cure, which is indicated by the lasting disappearance of the reaction, or on the other hand, we may be dealing with a transitory negative phase, due to the fact that the remaining spirochetes are so diminished that those still left are not able to produce a reaction, and when they have again increased in number a positive reaction will again occur. This positive relapse without external manifestations is an indication for further treatment.

CONCLUSIONS

1. We have in Ehrlich's remedy a powerful agent against syphilis.

7. Neisser: Deutsch. med. Wchnschr., Oct. 13, 1910, p. 1889.
8. Ehrlich: Deutsch. med. Wchnschr., Oct. 13, 1910, p. 1893.

2. A single injection has in favorable cases approximately the same result as four to five months' treatment with mercury and iodin.

3. It may show a brilliant effect in cases in which mercury and iodin have failed.

4. Salvarsan has advanced the treatment of syphilis in a decided manner, but on account of its strong arsenic content, repeated doses may have a disastrous effect on the human organism.

5. Every physician should master the technic before attempting to use it. Only in this way will the drug be safely guarded from many pitfalls.

In closing I wish to thank Dr. Joseph L. Boehm, of St. Louis, for his kind suggestions and Dr. D. N. Spaulding, Dr. John H. Fletcher, Dr. R. Dawes, Dr. D. Borges, Dr. H. H. Redfield, Dr. J. H. Nowlin, Dr. J. D. Bartlett, Dr. G. H. Stannard, and Dr. Nelson Percy for their kindness in referring a part of my material to me.

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INTRAPERITONEAL SHORTENING OF THE ROUND LIGAMENTS FOR RETROVERSION OF THE UTERUS

THROUGH THE TEMPORARILY DILATED INGUINAL CANALS AND INTERNAL RINGS, WITH CLOSURE OF THE WOUNDS BY A CAREFUL HERNIA TECHNIC *

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Eleven years ago, at the Columbus session[1] of this Association, I took the initiative in this country in assailing the various fixation and artificial ligament operations for retroversion and flexion of the uterus in women who retain a capacity to conceive. At that time the results of such wrong and misdirected surgery already began to appear on the continent of Europe, and no great amount of erudition in *a priori* reasoning was required to foretell what the outcome of the same would be with us. A rationale on anatomic and physiologic grounds was then presented, showing a direct antagonism between the interests in the technic of such operations and the interests of the uterus in gestation and parturition; that either only futile or temporary results on the one hand or disasters on the other would result in a large proportion of cases. I was free to do this because it had been my good fortune to supplant the superficial, blind and incomplete simple Alexander operation in my practice, with a thoroughgoing intraperitoneal bi-inguinal procedure, which I had then performed over 100 times and of which I reported the remote results after an average period of two years in forty-seven cases, two months later, August, 1899, at the Amsterdam meeting[2] of the International Congress of Obstetricians and Gynecologists.

No other operation for retroversion of the uterus has been so carefully studied and so severely tested as to its ulterior results by so large a number of operators as has the Alexander operation. Most operators, especially the devotees to the fixation and artificial ligament procedures, have reported the status (often the subjective condition only) of their patients only up to the time when they left the hospital, or when they received an oral or written statement from them, or to the time of a childbirth, without regard to the position and condition of their pelvic organs after childbirth, or to the possible existence of some other concurrent affection. This is grossly insufficient and unworthy of notice by a scientific body or by a decent medical journal. Likewise it is not enough to depend on the patients' statements of their subjective conditions, but their objective anatomic status must also be obtained by a careful examination; and both the subjective and objective findings should be taken after an average interval of two years has elapsed.

Since pregnancy and childbirth are the chief functions of these organs and involve the most signal metamorphoses in them, these reproductive physiologic achievements must also be accepted as the normal standard by which to gage the merits and demerits of operations on these organs. My "double test of pregnancy" implies that the given procedure does not hinder pregnancy or induce complications for labor. This simple test of pregnancy will be readily passed by the multitude of procedures on the round ligaments, by the artificial ligament operations in most cases and the sero-serous fixations in many cases, but the severer crucial or double requirement, that displacement of the uterus will not recur after one or more subsequent labors, has been proved to be met successfully only by some of the round-ligament operations, and by none of the artificial ligament or fixation procedures in an acceptable percentage of cases. According to all real evidence or proof, so far as recorded, only round-ligament operations, and of these only those that do not place dependence on the tapering and useless distal ends of these ligaments to do any holding, are able to pass these severe but normal requirements successfully in an acceptable percentage of cases. The plain reason for this is that the round ligaments are a part of the uterus, and as such undergo with it both evolution (not stretching), during gestation and involution after labor, which is not true of any fixation or artificial ligament that human ingenuity or conceit may devise. That fact excludes all such operations aside from (1) bi-inguinal (Alexander) operation, and (2) transplantation of round ligaments into the abdominal wall by some one of the numerous minor variations in technic, all of which are fundamentally correct in principle.

What is the record of the bi-inguinal operation? In my last summary of this subject before this Section, five years ago, I reported twenty-two cases of my own, each of which had passed the double test of pregnancy successfully, after previous intraperitoneal bi-inguinal shortening of round ligaments, with the Bassini hernia technic in closure of the wounds, and with these I reported a collection of 147 similar cases by twenty-five other operators, making in all 169 double test cases. Among these were only three failures, and these were for cause: namely, two cases of prolapse in which the undue elongation of sacrouterine ligaments contraindicated round-ligament shortening alone, and in the third case it was due to violent intrauterine manipulation and infection by a midwife. To this collection of 169 cases there now to be added 115 more such double-test cases by the following operators: 18 by Epstein,[3] 7 by Fuchs,[4]

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Goldspohn, A.: The Uterus; Why Vaginofixation, Ventrofixation and Ventrosuspension Thereof Should Be Avoided in Cases That Retain Any Capacity for Conception. THE JOURNAL, A. M. A., July 22, 1899, p. 181.

2 Goldspohn, A.: Am. Jour. Obst., 1900, xli, No 5.

3. Epstein: New York Med. Jour., 1905, lxxxi.

4. Fuchs: Zentralbl. f. Gynäk., 1905, pp. 613, 648.

26 by Tillmann,[5] 14 by J. W. Taylor,[6] 28 cases by Hannes (Kustner),[7] and 22 cases by Leese.[8] Some of these operators mention a recurrence rate of from 3 per cent. to 4.5 per cent., which probably applies also to the patients that bore children. If so, we have 284 cases examined after one or more childbirths, with an average recurrence of displacement of less than 4 per cent. With such a record the results of all other operations for this purpose—aside from the transplantation of round ligaments—are not to be compared.

The recurrences have become much less frequent with those operators who have discarded the old extraperitoneal method and have drawn the ligaments out more thoroughly after dissecting back the peritoneal investment in the properly opened canal and internal ring, and have noted the proper degree of advancement of the fundus through the same. Very many operators have followed my lead to that extent in this matter, but only a small number of them have followed me to the full extent of severing adhesions by introducing a finger or two through the dilated internal ring of each side, drawing the tube and ovary into or out of this opening and resecting or removing them, as may be indicated. The ovary and outer half of the tube are suspended from the broad ligament at a point just back of the internal inguinal ring and are often drawn out of that opening more easily than into a median ventral incision. In breaking up adhesions no decent operator makes anywhere in the abdomen the enormous incision that would be required, together with more or less evisceration, in order to see these adhesions down in the true pelvis. We all sever such adhesions by the sense of touch alone no matter by what route they are reached. This route should not be chosen for patients with immovably fixed uteri and adnexa with indurations, etc., because this would be dangerous and a waste of labor in such cases, for the patients do not become pregnant whatever the procedure used. Their tubes are too badly injured, and therefore they are well enough served by some simple fixation or duplication of round ligaments, by way of a median section.

The reasons commonly advanced against my intrapelvic work in my bi-inguinal celiotomy, via the dilated internal rings, are not at all the reasons why I have practically discarded this operation in recent years. I did it in over 200 cases, together with curettage and operations on the cervix, perineum or rectum in most of them, with a mortality of less than 1 per cent. I had twenty-two cases crucially tested by pregnancy and labor, without abnormality or a sign of a recurrence or of a hernia in any of them. My total recurrences of displacement were less than 1.5 per cent. without ever resorting to a pessary after operation. The reasons why I have practically discarded this operation are as follows: (1) violent appendicitis has occurred within a year or two in a number of cases in which I had the opportunity to remove the appendix, and did not do it because of sentimental reasons and because it seemed to be, and always to have been, normal; (2) according to several writers, and according to sensible *a priori* reasoning, cecostomy is preferable to appendicostomy when indicated for treatment of the colon, and (3) we find this wholly useless vestige, club-shaped or otherwise, disposed to make trouble in so large a proportion of cases, which in the past have been free of plain attacks of appendicitis. Therefore I am convinced as to my duty to remove this menace nearly always, especially when I open the abdomen for a relatively minor indication such as ordinary uterine displacements are. This cannot be done safely through the inguinal canal as a rule.

Furthermore, it is often desirable to palpate the gall-bladder, the pylorus or a kidney, in conjunction with an operation for pelvic disorders, or to resect a dilated linea alba. All these can be done if a median ventral incision is chosen and enlarged when necessary. By the same incision the uterine displacement can also be cured in a creditable manner by transplantation of round ligaments into the abdominal wall; therefore this only real competitor of the Alexander operation properly becomes its successor. But in recent years a compromising combination has been made between a median laparotomy and shortening of round ligaments in the inguinal canals after Alexander's method. Both of these acts are done by way of a straight or curved transverse suprapubic incision, which need not always be made through the aponeurosis of the recti muscles. This affords sufficient opportunity for the required median section and also access to the inguinal canals for the Alexander operation, under intra-abdominal control of the proper degree of shortening of each ligament. This in substance has been done by Peterson,[9] Rumpf and Palm,[10] Werth,[11] Kustner,[12] Littauer,[13] and Broese,[14] and promises to become a standard procedure. The Alexander operation, thoroughly performed, however, with its principles and monumental results, before mentioned, has led the way to such still more salient procedures. It can, therefore, well rest on its laurels if it is never performed again.

But to those operators, if any there be, who are still performing the original so-called extraperitoneal (?) Alexander operation, especially if without opening the inguinal canal, I would like to say with something louder than the human voice and words that they are not doing their duty by their patients; that their implied promises of best efforts and normal services held out to these patients are tinctured with fraud. This type of operation should certainly be banished, because, first, as I have repeatedly stated, the adhesions of the ovary and the outer end of the tube are much more frequent than of the uterus itself, because in their vicinity infection by way of the tubes comes first. Adhesions of these small structures are very difficult to discover and are often not suspected when the uterus is movable. They are formed on these adnexa in their descended location, to which they sank with the retroverted body of the uterus. When the latter is brought forward into anteversion the adnexa cannot follow, being fixed at a lower plane. The enforced tension on these structures entails discomfort to the patient, and the direction of this traction, being opposed to that of the extraperitoneally (often imperfectly), shortened round ligaments, endangers their integrity and tends to induce a return of displacement of the uterus. Such adhesions of adnexa, beside a free uterus, are severed with the greatest ease by a finger within the internal ring, which, fortunately, is just in front of the parts.

5. Tillmann: Beitr. z. klin. Chir., 1907, lv, 318.
6. Taylor, J. W.: Jour. Obst. and Gynec. Brit. Emp., 1907, iii, 415.
7. Hannes: Zentralbl. f. Gynak., 1908, No. 49.
8. Leese: Monatschr. f. Geburtsh. u. Gynäk., 1909, xxix, 448.
9. Peterson, R.: Surg. Gynec. and Obst., 1906, iii, 85.
10. Rumpf and Palm: Ztschr. f. Geburtsh. u. Gynäk., lix, No. 1.
11. Werth: Zentralbl. f. Gynäk., 1909, No. 14.
12. Kuestner: Zentralbl. f. Gynäk., 1909, No. 2.
13. Littauer: Zentralbl. f. Gynäk., 1909, p. 833.
14. Broese: Zentralbl. f. Gynäk., 1909, pp. 668, 1256.

Secondly, the round ligament does not slide or pull out from the broad ligament enough, once in every four or five individual instances (according to careful observation on this point in fully 130 cases), without some scissor-clips on the front blade of the broad ligament, which is always drawn forward into the ring. The shortened ligament then remains, pulling forward from the broad ligament at a point distant from the uterus, and therefore with little or no good effect on the displaced fundus uteri. This condition is very easily discovered by pulling on the broad ligament while the index-finger of the other hand is placed against the uterus through the ring, and it is just as readily relieved.

Thirdly, in the not infrequent cases of retroversio-flexion, with a heavy fundus, the center of gravity of the body of the uterus is often posterior to a line joining the points of origin of the round ligaments, while the posterior cervical supports are elongated. In this condition the round ligaments will have to be dissected out extensively from the broad ligaments, usually along with a generous strip of enveloping peritoneum, and they must be given a new course quite directly forward; otherwise traction on them from the inguinal canals is quite as likely to bring the cervix rather than the fundus forward.

That extraperitoneal (?) shortening of round ligaments is insufficient, is shown by the high percentage of recurrences of displacements, even in cases that have not been tested by pregnancy. Longyear,[15] including two cases in which he could not find both ligaments, had 12.5 per cent. failures. Hannes (Kuestner)[16] had three recurrences of displacement after nine operations performed extraperitoneally, while after sixty-two operations done with opening of the canal and peritoneum and more thorough elaboration of ligaments, the patients were found, two years later, to be without any recurrence of displacement.

CONCLUSIONS

1. The improved Alexander operation thoroughly performed has more good and approximately perfect results recorded to its credit than, so far, are recorded to the credit of all other operations combined that have been performed chiefly for retroversion of the uterus.

2. No Alexander operation should ever be performed without digital exploration within the pelvis through both internal rings, to prove that no adhesions remain, and to prompt and facilitate an adequate dissection of the round ligaments from the broad ligaments to give the former a sufficiently forward course to hold the fundus uteri forward effectively.

3. Prolapse of the uterus, or retroversion due chiefly to elongation of the sacro-uterine ligaments, should be treated by shortening these ligaments, when possible, or by attachment of the psoas parvus tendon or a portion of the psoas magnus muscle to the back of the cervix, in the manner suggested by Harris,[17] and never by shortening of round ligaments as the chief act.

4. Inasmuch as transplantation of round ligaments into the abdominal wall by some one of the numerous minor variations in technic, secures a creditable correction of retroversion in most cases by way of a median incision, which is also available for appendectomy, and various desirable explorations within the abdomen, this manner of operating has largely and properly superseded the general type of operating by way of the inguinal canals.

5. A plan of operation that is still more correct anatomically and surgically, has, in recent years, been carried out by at least seven operators with satisfaction. It consists in doing first, a sufficient median laparotomy and the required intraperitoneal work, and secondly, in shortening of round ligaments within the opened inguinal canals themselves, both by way of a transverse suprapubic incision, either straight or curved upward and extending through the aponeurosis of the recti muscles, as may be required.

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15. Longyear: Am. Jour. Obst., November, 1908.
16. Hannes: Zentralbl. f. Gynäk., 1908, No. 49.
17. Harris, M. . : A New Operation for Prolapse of the Uterus, THE JOURNAL A. M. A., May 14, 1910, p. 1605

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. COFFEY,* BALDY, GILLIAM, SIMPSON, DUDLEY AND GOLDSPOHN, FORMING A SYMPOSIUM ON OPERATIONS FOR RETROFLEXION OF THE UTERUS

DR. E. E. MONTGOMERY, Philadelphia: It is with considerable hesitation that I speak when the inventors have presented their various operative procedures. I class myself as an adjuster rather than an inventor. The number of operations that have been introduced for correcting and maintaining the uterus in its proper position is evidence that none of these has been exactly what was necessary in all cases, and I would not come to-day to advocate any particular operation as an absolutely sure cure in every case that might present itself. I have lived long enough in the profession to have gone through the various procedures that have been devised from time to time for this purpose. I have, of course, practiced the operation of ventrosuspension and ventrofixation. I had the misfortune in performing this latter operation in one case to have a knuckle of intestine slip around the band of adhesion and the patient die as the result of the constriction of the intestine. This accident led me in doing the Gilliam operation to obliterate the space on either side in which the intestines might slip through. Later I utilized the procedure of Dr. Simpson with that of Dr. Gilliam by making an opening in the anterior leaflet of the broad ligament, threading the ends of the ligature which have been passed around the round ligament into the eye of a Deschamp's needle and have carried this through the broad ligament until it has penetrated the aponeurosis as suggested by Gilliam. I much prefer the Pfannenstiel incision, as it permits of greater exposure of the parts. This procedure also enables us to get directly down on the site of the round ligament. We are directly over it and it is under our control during the whole procedure.

The operation suggested by Dr. Baldy certainly does lift up the uterus and probably sustains it better than any operation done on the round ligaments. The objections are the very extensive traumatism on the posterior surface of the uterus and the fact that it pulls out the ligaments from the peritoneum, leaving an extensive raw surface on the posterior surface of the ligament to which adhesions of the intestine and rectum are likely to occur. I have had the opportunity to operate on one of the patients who had passed through the hands of Dr. Baldy and found that this condition existed, drawing back the uterus after an operation had been done. This modification makes a fibrous band of the musculature which is effectual in maintaining the uterus in a forward position. The uterosacral ligaments are much like the Arctic circle—an imaginary line. They have been completely obliterated by the conditions which have led to the sinking down of the uterus and are consequently of little effect. The procedure suggested by Coffey of utilizing the peritoneum, bringing about extensive adhesions of the peritoneum, serves a most efficient purpose. Here the uterus is held up by adhesions and consequently the cervix drawn backward and upward and in that way the displacement is overcome.

DR. J. B. MURPHY, Chicago: I address you in this discussion as fellow gynecologists, because it is all surgical, and all of the gynecologists are going to become general surgeons. In

* Some of these articles appeared in THE JOURNAL last week.

the question of retrodisplacement we have important problems. The position in which the uterus arrives at the physician's office is in one of the two, three or four degrees of displacement into which we usually subdivide them. Those who have lived through the pessary period and know the great relief that the patient receives when the uterus is held forward with a pessary, put in intelligently, know the relief that can be obtained from replacement, when you do not do additional damage to the patient by its improper insertion. I say that after a considerable clinical experience. In the attempt to relieve the displacement by many of the operations, and in some of the patients by all of the operations, the treatment leaves the patient worse than when it was begun. Just why this is true we do not know, but we know it occurs. Therefore, in deciding on the operation we must individualize as to anatomic conditions present, taking note of the degree of displacement, the construction of the patient's pelvis, and of the supports which we are able to appropriate for the retention of the uterus.

In the relief of displacements by anterior fixation to the abdominal wall, which I was supposed to discuss, I must say this, that I made the ventral fixation for a number of years in the majority of operations. In a considerable percentage of cases the patients had three causes of complaint against me: (1) When the patient sneezed she had to seize her abdomen because of the pain caused by the traction; (2) when she jumped from a street car or carriage there was a sensation of tension or of pain; (3) finally, elongation took place and the uterus returned to the previous position. In the evolution of the displacement, whether it is immediate, following a severe injury or strain, or whether it is gradual, where do you find the uterus in the third degree? Down in Douglas' pouch with the intra-abdominal pressure on the anterior wall. Where are your round ligaments running? If you examine the patients, and particularly the thin ones, you will find in the superlative degree of displacement, if you are going to appropriate the round ligament to the support of the uterus without changing its attachment, that you have another element to contend with—the round ligament, normally situated high up and near the corner of the uterus, has worked down one and one-half inches to the line. So you have lost your leverage support from its position. The round ligament, I consider, is the balancing cord of the uterus. It carries none of its weight, simply balances it, and the weight is carried from below. The most natural thing in its restoration would be to put the weight where it was before; but the weight remains, except that it is resting on the floor of Douglas' pouch.

I use the round ligament for restoration in cases in which there is a comparative degree of displacement. Recurrence is more frequent than agreeable, but I believe there is less discomfort to the patient than with the fixation. In the superlative degree of displacement I have followed another line of treatment. In a case of procidentia if you will make an incision in the Pfannenstiel line down to the rectus muscle, then split the rectus muscle in a line parallel to its long axis; draw out the uterus and cut off the round and broad ligaments down to the cervico-corporeal junction, then split the uterus parallel to the long axis of the body down to the cervix, turn out the lateral flaps, remove the mucosa of the tube and uterus down to the cervix, then sew the uterus to the external surface of the sheath of the recti after uniting the peritoneum and the aponeurosis of the rectus up around the cervico-corporeal margin of the uterus, it will then hold the bladder and the rectum up as long as the patient lives.

DR. H. J. BOLDT, New York: We have traveled through a veritable jungle of surgical interventions for the cure of displacements of the uterus, particularly posterior displacement. We might believe—judging entirely from what has been said by all except the last speaker, Dr. Murphy, who paid attention to other than surgical intervention—that perhaps there is no other method than surgical intervention. Moreover, judging from the number of operations which have been reported, off and on, for displacement of the uterus, it would seem that every woman who has a retrodisplacement of the uterus must have been subjected to a surgical intervention for the relief of that displacement. We must bear in mind that so far as the symptoms are concerned, caused by a posterior displacement, they very seldom are caused, except from a mechanical interference with the functions of the pelvic organs. Symptoms are usually caused by complications. When symptoms occur from a mechanical cause we need not at once resort to the opening of the abdomen. In that class of cases I believe the great number of patients can be treated effectually by the use of a pessary, applied with common sense. There are a few isolated cases in which a pessary will not relieve such conditions. In cases in which the fundus of the uterus tips over the upper part of the pessary, and in that class of cases alone, we should consider the desirability of surgical intervention. I believe, notwithstanding what has been said, that the ideal operation is the Adams-Alexander operation, through the inguinal canal, provided that there is no downward displacement. The moment we have descensus the operation is absolutely worthless. So far as intraperitoneal operations are concerned, they are indicated only in the presence of complications with the adnexa, when we have an adherent retroflexion.

All the argument, all the speaking done here, will have no effect on any of the men who have devised operations. The matter is one of personal equation. I believe there are merits in all. There are so many roads that lead to Rome we may have the benefit of any. My personal experience has led me to believe that the operation devised by Dr. Gilliam is the most satisfactory.

DR. J. H. CARSTENS, Detroit: It seems to me that Dr. Boldt has struck the keynote. When I was a young man I had a patient with retroversion. I had been graduated at a period when there was a great cry against pessaries. So, of course, I did not use a pessary—thought they were injurious—and I treated the woman on general principles. She evidently was a great sufferer. She ceased coming to my office and the next thing I heard was that she had gone to a woman physician who had examined her and said she had a retroflexed uterus. She put in a pessary and cured her. I have found since then, as Dr. Boldt has said, that there are cases in which pessaries are valuable; for instance, in those cases shortly after confinement in which the uterus is large and heavy. Other cases are those of young girls and sometimes of married women. It occurs to me that if there are adhesions and you have to open the cul-de-sac, you might as well open it anteriorly and find out what is necessary to do rather than to perform the Alexander operation. The patients who require only pessary treatment and who have simple retroversions that produce no symptoms I do not see. The kind of cases we see are complicated cases in which we must do exploratory abdominal section. In one case I may take out a tube and ovary. In many of these cases I sew the stump in the lower abdominal incision, and even in patients subsequently pregnant no trouble has been experienced. In some of these cases I do an operation such as Dr. Bandler does. Sometimes one is good; sometimes another.

DR. C. W. BARRETT, Chicago: Fellow surgeons—I say that because a great gynecologist is something of a special surgeon, and not because every surgeon is a great gynecologist—we have had a great feast showing what the round ligaments and the false ligaments can do in the correction of retrodisplacement. If I remember aright there was another great feast at which there appeared certain handwriting on the wall, which translated, I believe, meant, "Weighed in the balance and found wanting." That applies to a number of the operations spoken of here for retrodisplacement. The soundest principles have been laid down by Dr. Goldspohn. His is the operation of safety. Ventrosuspension and ventrofixation were formerly the excuses you could offer the patient for making a vivisection, for studying anatomy and living pathology, and they have had a wonderful place, but they are dead operations. The satisfaction that each person has felt in an operative procedure only shows how easily we are satisfied, and this is the chief thing in the way of progress. We must have the very best thing that can be offered, for the best is none too good. Whatever operation we choose must follow certain definite principles. It must be not complicated. It must be

safe, immediately and remotely safe. It must allow inspection and correction of conditions in the abdomen. Next, it must use normal ligaments instead of false ligaments. Goldspohn has laid this down definitely. It must have the best part of a ligament instead of the poorest part, because there is a better and a poorer part of the round ligament. Next, it must use the natural ligaments and place them normally. It must not sew up the round ligaments and run them anywhere. I do not condemn Dr. Gilliam for proposing that, but it is an evil of ventrosuspension that it runs ligaments from the peritoneal space. An operation to stand the test must meet these requirements. Such an operation will stand the double test of pregnancy. I thought at one time that I had devised such an operation. I had full possession of that thought for two years. Then I had to share the matter with Charles Mayo. In another year I think I shall have no connection with it at all.

DR. H. O. MARCY, Boston: Many years ago I thought I knew something of this operation. I had studied hernia with a great deal of care; therefore I thought I knew all about the Alexander operation. I welcomed it. I did it. I thought I knew my anatomy. I failed. I discredited it. To-day I take the position largely of Dr. Montgomery. We must be guided by the different factors. First of all, if we can restore a patient by a well adjusted pessary, it is *prima facie* evidence that operations from below may cure. When they fail it must be, I think, an operation from above. That operation, several men have said, must be laparotomy, and that gives you the inspection as Dr. Carstens has said and the knowledge of the various factors with which one must deal. Then, after doing all sorts of operations on the ligaments, in a general way, I have operated for quite a number of years—transplanting the round ligaments a little higher, making a new inguinal canal, reproduced to the normal pattern—for it is a congenital defect. The peritoneum must be so infolded that raw surfaces are not left within the abdominal cavity.

DR. W. H. WATHEN, Louisville: If once a surgeon begins to treat these patients all on the same principle he will never be successful. Each patient must be treated as an individual case and the existing pathologic conditions must be met. You hear a great deal said about shortening the round ligaments, the utero-sacral ligaments, and the various structures, to hold the uterus in position. It has never yet been demonstrated what does normally hold the uterus in place. We do know that there are structures above the perineal floor and there are structures below the uterus that participate in this, and whenever you find a defect in the structures you must treat such defect as encountered. I have performed nearly all the operations discussed to-day because in my line of work I have had a relatively large experience, and I have found less trouble and better results by anterior suspension. I have had no trouble following pregnancy. As Dr. Dudley has remarked, if in a case of retrodisplacement you perform any or all of the operations for the cure, yet do not repair the pelvic floor and suspend or elevate the bladder, you will never secure permanent success. If you make an anterior suspension in women not past the childbearing period by one suture only, and then build up the pelvic floor and bladder wall you will have success. If the woman is past the child-bearing period, then make a firm anterior fixation instead of a suspension, and if the uterus is too large amputate a large portion of the cervix, unite the vagina to the stump of the cervix and at the same time repair the pelvic floor, and, if needed, separate the anterior wall of the vagina from the bladder, elevate it by an approved method and then do a uterine suspension or fixation as indicated by the age condition of the patient.

I often perform the Gilliam operation, or some of its modifications, but I have never had any complication following anterior suspension of the uterus and I have performed the operation several hundred times.

DR. G. BETTON MASSEY, Philadelphia: I wish to emphasize the true cause of the displacement, which seems to have been overlooked by those who have spoken. The pathologic condition is not the displacement; it is the morbid condition of the uterus, the chronic inflammation of the uterus. Proof of that is found in the very large number of retroflexions that present no symptoms. This is shown also by the fact that many such patients in whom the diseased condition of the uterus has been cured, without complete rectification of the flexion, cease to have symptoms. With an experience of twenty odd years in the treatment of these cases of retroflexion I have never yet come across a single patient in whom the normal movable condition of the uterus needed to be destroyed by a fixation. I protest against all the operations described, and consider each and every one based on a misconception of the pathologic condition. It is now universally conceded that inflammation is due to germs and not to mechanical conditions.

DR. GEORGE GELLHORN, St. Louis: The multiplicity of these operations forces me to the conclusion that none of them is ideal and applicable in all cases. But how is the gynecologist who has not had the originality to invent a method of his own, or who has not enough material to test all these methods, to choose the one he shall use in the individual case? Granted that all the claims made for the various methods are justified, namely, that they do not interfere with the functions of the genital organs, and that they are not any more dangerous than the disease itself, I think there are certain principles, the consideration of which will help us to limit the methods from which we may choose. In a case of retroflexion during the reproductive age I would avoid, first, any operation which fixes the uterus in an abnormal position. Examples of such are ventrofixation and ventrosuspension. Second, I would avoid any operation which deprives me of the sense of sight. There is no living man who is able to determine by bimanual examination in every case before the operation the absence of delicate adhesions or of minor pathologic complications about the tubes and ovaries, and if he does an operation of the Alexander or Goldspohn types, he deprives himself of the opportunity of freeing adhesions. Third, in an operation, as Dr. Barrett has pointed out, in which the round ligaments are used, I would try to use the better part of these ligaments. In some of these operations the weak part is still left to do the work of holding up the uterus. Fourth, I would avoid any operation which utilizes ligaments which have a very unimportant part in holding the uterus in place, and which are much too weak to do it. These are the objections to the Bovée type of operation, in which the utero-sacral ligaments are utilized. They are much too small to hold the uterus forward ordinarily, and if we find in a patient thickened and shortened utero-sacral ligaments we have to treat that condition because it produces distressing symptoms. In methods of this kind we produce artificially a condition which we are often called on to treat. The observation of these four principles will help us to limit our choice and I believe that of the numerous methods, only part of which have been mentioned here, there will be hardly more than two or three that will answer.

DR. HENRY T. BYFORD, Chicago: The strong end of the round ligament is in the inguinal canal. Those who have performed the Alexander operation, know that they have to cut some fascial attachments in the inguinal canal which give firmer support than the intraperitoneal muscular part, which is not a direct support; it is a balancer. If we want to suspend the uterus we had better eliminate the intraperitoneal, muscular portion, and depend on the other. This is what is done in the Baldy operation. In the majority of cases we do not want actually to suspend the uterus, we merely want a balancing action. Nature has experimented on woman for many years and knows how to hold up the uterus. Those operations which imitate Nature by making use of a new canal, or the old one, must be right in principle.

DR. J. M. BALDY, Philadelphia: I feel a bit concerned that a general surgeon should speak of including us as surgeons. For a long time the gynecologists have been attempting to educate the general surgeons, but having so ignominiously failed I feel that probably we had better go to them and learn general surgery, as suggested by Dr. Murphy. The pessary was not discussed in my paper because I was not asked to discuss that subject. I see pessaries used in only two kinds of cases, and I can come to but one conclusion—that nobody in the East knows how to use them—for it has been said on the floor that there are good ways of employing them.

XUM

The two classes of patients who come to me with pessaries are those with perfectly normal anteriorly displaced uteri which need nothing, the patients having been made sick because some fool doctor has put a pessary in, and secondly, the patients with prolapse in which a pessary is of no use. Consequently I feel that nobody in the East knows how to use them, barring New York, and I intend to make a special trip to New York to see whether they are correctly used there. The ability seems to be confined to the West or to the Middle West, to Chicago principally. I showed by the model this morning how useless is the weak end of the round ligament in this operation. But I shall convince Dr. Gellhorn of his wrong position by showing him by the model that that end of the ligament is not used at all in the operation.

DR. D. TOD GILLIAM, Columbus, O.: The only criticism made of the operation which I have devised is that it leaves bands in the peritoneal cavity which are liable to produce obstruction of the bowels. "The proof of the pudding is the eating thereof." For ten long years or more this operation has been performed thousands of times by hundreds of different operators and there has never been a case of obstruction of the bowels.

DR. F. F. SIMPSON, Pittsburg: I think we all recognize the fact that there are many displacements of the uterus that require no treatment and that many others are corrected by the pessary. There are many others in which some coincident disease, cardiac, renal, pulmonary, thyroid or other disease, contraindicates any type of operation for any purpose. In such cases benefit is obtained from the use of the pessary. The work of Drs. Reynolds, Goldthwaite and others has shown the importance of examination of the sacroiliac joint before the treatment of displacement by any method is to be considered. In reference to the employment of other operations than those devised by the individual operator, I have used and am constantly using parts of operations of different types and expect to continue to do so.

DR. A. GOLDSPOHN, Chicago: Dr. Coffey makes several assumptions that are fundamentally wrong: (1) He assumes that all abdominal as well as pelvic organs are held in their places chiefly by their peritoneal mesenteric supports. The truth is that the abdominal walls hold the abdominal organs chiefly, as we soon find out when these walls are defective. On the other hand, the uterine supports have either connective tissue or muscle in them in addition to the peritoneum. The free expansion of pelvic tumors shows that peritoneum holds not much better than skin. (2) That two layers of stomach or intestinal wall may unite and form one layer permanently, does not prove that the same will be true of the broad and round ligaments about the uterus, which are subject to the phenomenal and entirely peculiar changes incident to gestation and parturition, which does not apply to intestines, etc. In secondary laparotomies I have repeatedly seen all such plications and foldings of broad and round ligaments completely wiped out without leaving a trace of the former work, after an intervening childbirth. In retroversion cases, the displacement had nearly always recurred. That the proposed plications of broad ligaments proposed by Dr. Coffey do give way as above stated, is shown by his declaration that the involved round ligaments disentangle themselves later, and assume their usual course. This they could not do without the giving way of the broad ligament plications. The doctor practically constructs two connected links of a chain, and then claims that they become separated without either one of them being broken. The operations devised by Drs. Webster, Baldy, Ries and a number of others for retroversion, are inferior as to stability, because they depend on the tapering, feeble outer ends of the round ligaments to do holding, which they cannot do because of their feebleness and because of their course in areolar tissue extraperitoneally before entering the inguinal canals. I have practiced, for some years past, median section with removal of the appendix and other explorations, and have corrected retroversions in a small number of cases by shortening the sacro-uterine ligaments; in others by transplantation of the round ligaments into the abdominal walls, by several of the different methods, chiefly by a modified Gilliam operation, in which the uterus is drawn up more, so that it comes in contact with the abdominal wall, and the utero-vesical space becomes quite effectively shut off from the entrance of the small intestine. The theoretical arguments about intestinal strangulation, etc., do not apply to this form of the operation at least, of which I have over 500 that are fully two years old, and without any such disaster, or any difficulty in childbirth.

IMMUNOLOGY

A MEDICAL SCIENCE DEVELOPED THROUGH ANIMAL EXPERIMENTATION

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Perhaps no other of the medical sciences can be so suitably discussed in relation to animal experimentation as immunology, because no other science has been so dependent on this method of attack for its development.

The science of immunity, or immunology, would explain the mechanism by which the animal body is enabled to resist disease. In addition to its fascination as a biologic science, immunology offers the added interest of the greatest human utility, the prevention and cure of disease; and precisely in this vital significance lies at once the importance of the science and a potential danger to its sound development. This danger arises in an overanxiousness to apply supposedly specific agents before the principles that underlie their apparent effect have been determined. The history of immunology has, indeed, brought into particular relief certain interesting relations of theory to practice, worthy of more philosophic discussion, but we may content ourselves with an attempt to point out the usual sequence of observed facts, logical deduction, inductive experiment, and, in concluded chapters, application of principle in the diagnosis and prevention of disease.

The relatively recent development of any exact knowledge of the mechanism of immunity is at first glance surprising, when we consider that certain examples of natural and of acquired resistance to disease have been recognized since ancient times. Some attempts to turn these recognized examples to practical use were from the beginning successful, but none of them was inaugurated with that understanding of the principle involved which brings the greatest utilitarian reward. It is obviously no lack of human interest in the subject which has delayed the evolution of immunology, but largely the lack of a suitable method of attack on so obscure a subject. The method was eventually furnished by the recrudescence of the experimental idea as applied to medicine and particularly as exemplified in the progress that has been made in determining the causation of disease. Immunology, indeed, parallels bacteriology both in chronology and in method. Before considering the development of the experimental science of immunity we may outline:

I. THE DATA OF IMMUNITY ACQUIRED FROM CASUISTICS

The first and most wide-spread type of resistance to disease is the inborn or natural immunity which is evident on the initial exposure to a given malady. With

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an increasing intensity, as expressed in more and more marked resistance to infection, natural immunity serves to differentiate individuals of a given race, races of a given species, and species of animals from one another.

The individual type of natural immunity may be noted whenever a group is subjected to equal chances of infection or contagion; certain individuals succumb while others resist. A familiar example to illustrate this relative individual resistance is given in any group of pathologists who are performing numerous post-mortem examinations; some members of this group are veritable martyrs to post-mortem infections, whereas others are practically immune. This type of resistance is frequently temporary and in all respects relative; it is dependent on certain subtle differences in general health and nutrition and may be evidenced by certain changes in the bactericidal properties of the blood, to which reference will later be made.

Natural racial immunity, to which attention was called as early as the sixteenth century, is in all probability dependent on differences in food and general hygiene. It is difficult to be certain in many so-called examples of racial immunity that have been given whether the increased resistance is in reality inborn or simply acquired through recovery from disease. The marked resistance of certain races of mice to a transmissible tumor (Haaland),[1] which resistance may actually be lowered by a change in environment, would seem a certain example of a natural racial immunity.

Species immunity is the most evident and distinctive type of natural immunity. The difference in resistance between any two species of animals to a given infection varies in general with the distance apart that these species lie in the animal scale. Although familiar examples of species immunity occur throughout the animal kingdom, those of the greatest interest occur in relation to a whole series of typical human diseases, syphilis, measles, typhoid fever, gonorrhea and the like, which never occur spontaneously in the lower animals, and cannot be transmitted to them or at best in modified form only. Recent studies with the higher anthropoid apes, however, have shown that at least certain of these typically human diseases (*e. g.*, syphilis and typhoid fever) may be produced in these animals because they are most nearly related to the human species. In a general way, species resistance may be attributed to differences in metabolism, body temperature, intestinal enzymes and the like.

Of far greater significance and practical bearing are those instances of immunity acquired through recovery from a given disease. It is a matter of human experience that man has usually but a single attack of many of the diseases to which he is peculiarly susceptible, such as smallpox, typhoid fever, measles and yellow fever. In the face of epidemics where only those that have been previously affected are spared it is evident that such recovered individuals are protected, not as the result of chance, but owing to some induced mechanism of protection against the disease. Similar conditions of acquired immunity have frequently been noted in domestic animals.

Logical deduction from these observed instances of acquired immunity long since led to attempts to reproduce this advantageous condition artificially. Empirical efforts have been made even among primitive peoples to induce in individuals some endurable form of a fatal disease so that they might subsequently be better protected from chance infection. The African Vatuas[2] have been reported as practicing an efficient form of self-immunization against snake venom; the Moors early protected their cattle from pleuropneumonia by running under their skin a knife that had been plunged into the lung of an animal that had died of the disease. It is well known that the Chinese and other peoples of the East protected themselves from smallpox by variolization, which was effected by inserting the scabs of human smallpox lesions in the nose of healthy individuals. A similar method was introduced into England by Lady Mary Wortley Montague in 1721 and was employed until the observations of Jenner on the relation of cowpox to smallpox in 1798 led to the present method of prevention of the disease by vaccination. The chance that a disease of cattle (vaccinia) is intimately related to a fatal human disease and that an attack of the one in the form of a localized disease would protect against the more generalized malady, alone rendered Jenner's observation fruitful. No generalized conception of the principle of "vaccination with a virus of diminished virulence," as later established by Pasteur, however, existed. This is evidenced by disastrous attempts that were later made to prevent measles, diphtheria and scarlatina by similar methods.

II. THE DEVELOPMENT OF IMMUNOLOGY THROUGH ANIMAL EXPERIMENTATION

Centuries of careful observation of facts obtruded by Nature in the course of devastating epidemics had taught at least two important principles in regard to resistance to disease: an acquired immunity follows recovery from an attack in perhaps the majority of acute diseases; and in at least one instance (smallpox) this acquired immunity may be artificially induced through a mild form of the disease. In the past thirty years the assets of utility from our knowledge of immunity have been multiplied to an extent that it would be difficult to estimate, to say nothing of the additional data of present theoretical interest which may ultimately be available in practice. And this advance has been rendered possible by animal experimentation.

It is the purpose of an experimental science to replace accident by design. A disease produced experimentally in animals offers innumerable advantages to one interested in its natural history; it offers the only method of obtaining the significant stages of the disease in complete series for more minute examination. Only the interruption of an experimentally produced disease at successive periods in its course can afford exact information as to the method by which infection spreads and immunity is produced.

The discovery of the fundamental principles of bacteriology by Pasteur and Koch, the isolation and cultivation of bacteria in pure culture, and the proved etiologic relation of a definite micro-organism to a given disease, gave new impetus to the principle of vaccination exploited by Jenner. The work of Pasteur and his pupils with the bacillus of chicken cholera on animals laid the foundation for the discovery of the great principle of vaccination by means of bacterial cultures of diminished virulence. This diminution of virulence was obtained, in the case of chicken cholera, by long growth on artificial culture media, and later, in the case of anthrax by subjecting the cultures to growth at high

1. Haaland: Beobachtungen über natürliche Geschwülstresistenz bei Mäusen, Berl. klin. Wchnschr., 1907, xliv, 713.

2. Metchnikoff: L'Immunité dans les maladies infectieuses. Masson et Cie, Paris.

temperatures. Similar methods of vaccination have been employed in the case of swine erysipelas and blackleg. In all instances the method has been arrived at by careful experimentation on animals and the products now used broadcast in actual prevention are first tested for virulence on laboratory animals. It is not my purpose to enter into a discussion of the practical results of protective inoculation but simply to indicate how the method of animal experimentation in bacteriology enriched the data of immunity.

Immunology may be regarded as having been differentiated into a specialized science from the moment that effective attempts to explain the physiologic mechanism that protects immunized animals were made. Theories of immunity were offered by Pasteur, Koch and others, but they were based largely on speculation drawn from the bare results of infection rather than from experiments designed to expose the process of immunity itself. In 1876 Koch[3] attributed conditions of immunity to some change in the condition of the blood. Pasteur's exhaustion theory (1880)[4] supposed that bacteria fail to grow in immunized animals owing to a lack of proper nutritive substances. A similar condition could be produced in artificial culture media as was shown by the failure of fresh chicken cholera bacilli to grow in filtered media that had already served for the growth of this bacterium; the addition of a little fresh bouillon containing fresh nutritive substances permitted growth to proceed. Chauveau[5] in the same year would have explained immunity as due to the retention in the body of certain substances which inhibit bacterial growth. It is of interest to note that in none of these theories is any allowance made for active participation on the part of the animal itself in the production of resistance. The theories of Nägeli, of Buchner and of Grawitz do at least emphasize a reaction on the part of the animal itself, although they have proved in other ways inadequate.

It remained for Metchnikoff, a biologist, to give the first experimental evidence explanatory of the process of immunity. In 1882 Metchnikoff began recording his observations on the function of the white blood corpuscles in protecting the body from disease, observations which in his hands and in those of his followers have continued fruitful to the present day. Before Metchnikoff, mention has already been made of the presence and of the disintegration of bacteria within leukocytes and Panum[6] in 1874 had even suggested that such cells might be serving some protective purpose. The general conception of the accumulation of leukocytes which characterizes inflammation, however, was that it was a means of spreading rather than of checking infection. Metchnikoff had been making studies of the origin of digestive functions in cells of mesodermal origin. He suggested that the inclusion of particles and cells within leukocytes was due to an active digestive function in these mesodermal cells and ventured the assertion that their diapedesis during inflammation was a protective mechanism. In one of the crustaceans, *Daphnia,* which frequently suffers from an infection with a form of blastomyces (*Monosporon bicuspidata*), Metchnikoff was able to show that the outcome of the infection depends entirely on the completeness with which the blastomyces is engulfed by the leukocytes of the host. He was soon after able to demonstrate that frogs and mammals also combat experimental bacterial infection by a similar process of phagocytosis.[7]

NATURAL IMMUNITY FROM BACTERIA

Although this phagocytic theory of immunity at first encountered extreme opposition, its opponents have gradually yielded more and more toward complete acceptance of the interpretation that Metchnikoff has with persistence yet remarkable fairness of judgment insisted on. It is generally admitted that many forms of natural immunity in particular are best explained on a simple phagocytic basis. The more complicated types of acquired immunity are less directly, though unmistakably, related with activity on the part of the white blood-cells. Leaving until later a discussion of the part played in each form of immunity by the cells, we may briefly outline the mechanism of phagocytosis in those instances in which it has been shown to be distinctive.

In the first place, the phagocytic cells may be divided into two general types as regards function. The small, actively motile polymorphonuclear cells of the circulating blood are practically concerned only in making way with the bacteria which produce acute infections; these cells are called "microphages." Under "macrophages" are grouped the large mononuclear leukocytes and certain endothelial and fixed tissue cells; the function of these cells is to take up other animal cells, such as red blood-corpuscles and protozoa, and also certain bacteria, like the tubercle and leprosy bacillus, which produce chronic infections.

It has been shown by careful studies, both within the animal body and in mixtures made in the test-tube, that the phenomenon of phagocytosis may be divided into three phases. In the first phase the leukocytes approach non-virulent bacteria owing to a positive chemotactic influence which the latter exert. If the bacteria are markedly virulent, on the other hand, they exert a negative chemotactic influence. These important facts of positive and negative chemotaxis were ingeniously demonstrated by Bordet,[8] who placed small capillary glass tubes filled with the bacteria to be tested in the peritoneal cavity of guinea-pigs and later measured the length of the columns of leukocytes that had penetrated the tubes. After reaching the bacteria the phagocytes engulf them, owing in all probability to an active ameboid process, although it has been suggested that this apparent activity is due in reality to a simple physical change of surface tension. The bacteria, once within the leukocytes, are broken up by a process of digestion. An extract of leukocytes may be made which contains an enzyme (cytase) capable of producing this digestion at body temperature outside the body and the extract has been shown to vary in accordance with whether it is derived from microphages or macrophages. The extract of microphages (microcytase) is particularly active against bacteria and is effective only in an alkaline medium; it has little effect on animal cells. Macrocytase, on the other hand, derived from the mononuclear cells, works best in an acid medium and destroys animal cells.

The active opposition with which Metchnikoff's cellular theory of immunity was at first met was directly productive of important facts which at first seemed to

3. Koch: Cohn's Beiträge zur Biologie der Pflanzen, 1876, ii, 300.
4. Pasteur: Compt. rend. Acad. d. sc., 1880, xc, 247.
5. Chauveau: Compt. rend. Acad. d. sc., 1880, xci, 536.
6. Panum: Virchow's Arch. f. path.-anat., 1874, lx, 347.
7. For detailed consideration of Metchnikoff's phagocytic theory, see Metchnikoff's L'Immunité dans les maladies infectieuses, which is also obtainable in English translation. (F. G. Binnie, Cambridge University Press.)
8. Bordet-Gay: Studies in Immunity, pp. 1 and 8, Wiley and Son New York, 1909.

attribute the active protective power of the blood to the fluid portion rather than to the leukocytes. In 1885 Fodor[9] showed that anthrax bacilli, when mixed with fresh rabbit blood in the process of clotting, were destroyed; and two years later Nuttall[10] showed that fresh defibrinated blood would produce the same effect. In 1891 Buchner[11] proved this bactericidal effect of fresh blood to be due to the cell-free blood serum, whether it is obtained by defibrination or by clotting. Buchner further described certain ferment-like substances in the serum to which this destructive power over bacteria is due and to which he gave the name of alexins (from ἀλέξειν to ward off or protect). The alexins resist freezing and thawing, but are destroyed by heating to 55 C. for one-half hour. They are unaffected by dilution in physiologic salt solution and may be precipitated with sodium sulphate. Such physical and chemical characteristics have caused alexins to be classed with the enzymes without any very profound knowledge as to their chemical composition.

Further studies, particularly those dealing with the origin of alexin, seem to have shown that the bactericidal property of cell-free serum is in reality no disproof of the correctness of Metchnikoff's conception of the cellular nature of natural immunity. There is good experimental evidence for the belief that the alexin of Buchner is never present in the blood plasma in the body, but is artificially liberated in blood serum by clotting, owing to a disintegration of the leukocytes which normally contain it. In other words, the "alexin" is synonymous with Metchnikoff's leukocytic ferment, the "cytase," which under usual conditions destroys bacteria within the cell (phagocytosis) and under abnormal conditions in shed blood is liberated in the serum. Many experimental observations have been adduced to prove this point. For instance it may be shown that the alexin varies with the degree of leucocytosis; leukocytic extract is essentially the same in its action as alexin; and alexin increases in the serum under conditions which favor disintegrating of leukocytes.

It would seem, then, that the leukocytes are largely responsible, either directly through phagocytosis or indirectly through liberation of cytase or alexin, for the condition of natural immunity from bacteria and animal cells. As we shall presently see, the study of conditions of acquired immunity, although in a measure complicating this explanation, has led to far greater insight of practical significance in combating disease.

IMMUNITY FROM TOXINS

At this point it is advisable both for reasons of chronology and exposition to interrupt temporarily our consideration of the mechanism of animal defense against bacteria as such. Bacteria that have gained entrance to the body are harmful, not only because they increase rapidly in numbers when unrestricted, but because they eliminate harmful products. These harmful products may be either simple chemical substances like acids and alkalies, bacterial proteins, known as ptomains, or more particularly, in certain instances, true bacterial toxins. Toxins are albuminoid substances, of unknown chemical constitution, which are specific both in their origin and in the effect they produce. They are endowed with certain other recognizable characteristics; they produce their harmful and specific effects only after a period of incubation; they are readily destroyed by heat; they act in very small doses; and lastly, as we shall presently see, they produce antitoxins. Pasteur, as early as 1880, noted that old bouillon cultures of the *Bacillus aviseptic*us which had been filtered free from bacteria would, on injection into animals, produce symptoms of narcosis. In 1888 Roux and Yersin[12] described a toxin found in filtered cultures of the diphtheria bacillus which was fatal for guinea-pigs in very small doses. Although the possibility of specific protection from bacterial invasion by means of previous treatment with killed or modified bacterial cultures was then known, attempts at a similar protection against this diphtheria toxin were at first unsuccessful. In the following year Kitasato succeeded in obtaining a pure culture of the tetanus bacillus and in 1890 von Behring and Kitasato[13] obtained tetanus toxin from such cultures. They found furthermore that by treatment with certain chemical substances the toxins of diphtheria and of tetanus could be weakened so as to be better supported by laboratory animals; animals treated with these weakened toxins became immune from doses of the whole toxin that were fatal to the normal animal. And, more important still, it was shown that the blood of such actively immunized animals would protect normal animals against subsequent injection of fatal doses of toxin, or would even cure, within reasonable time limits, animals that had already received the toxin. These experiments form the rational basis for the present highly effective antitoxin treatment of diphtheria and for the prevention of tetanus.

The interesting studies of Ehrlich[14] as to the mode of interaction of antitoxin with toxin not only gave rise to an enormously ingenious and fruitful theory of immunity but determined the recognized method of estimating and standardizing, by the use of guinea-pigs, the exact curative value of diphtheria antitoxin. We need not concern ourselves with the theories of antitoxin effect, as their interest, although of ultimate utilitarian value, is immediately largely academic. In addition to the better studied toxins of diphtheria and tetanus, true toxins have been described as formed by cholera vibrios, the bacillus of meat poisoning (*B. botulinus*), the dysentery bacillus of Shiga and the *Bacillus typhosus*. The exact relation of each of these latter toxins to pathogenesis of the disease in question is not fully determined nor can any final word be given as to the efficacy of an antitoxin treatment in many of these instances. In the case of the dysentery bacillus, at least, almost certain results may ultimately be expected from specific antitoxin therapy.

ACQUIRED IMMUNITY FROM BACTERIA

Reference has already been made to the important discovery of Pasteur that animals could be immunized by means of cultures of diminished virulence. In 1886 Salmon and Smith[17] showed that pigeons could be immunized against the hog cholera bacillus by means of cultures that had actually been killed by heat. In 1888 Richet and Hericourt[18] proved that this antibacterial type of immunity is transferable from one animal species to another. Von Behring and Nissen[19] demon-

9. Fodor: Deutsch. med. Wchnschr., 1885, p. 435.
10. Nuttall: Ztschr. f. Hyg., 1888, iv, 353.
11. Buchner: Centralblatt f. Bakteriol., v, 817.
12. Roux and Yersin: Annales de l'Inst. Pasteur, 1888, ii, 629.
13. v. Behring and Kitasato: Deutsch. med. Wchnschr., 1890, No. 49.
14. Ehrlich-Bolduan: Collected Studies in Immunity, ed. 2, p. 481, Wiley and Sons, New York.
17. Salmon and Smith: Centralbl. f. Bakteriol., 1887, ii, 543.
18. Richet and Hericourt: Compt. rend. Acad. d. sc., 1888, cvii, 690.
19. v. Behring and Nissen: Ztschr. f. Hyg., 1890, viii, 412.

strated (1890) that the blood-serum of guinea-pigs that had been immunized against the *Vibrio metchnikovi*, would kill these micro-organisms better *in vitro* than would the serum of normal guinea-pigs.

The extreme interest that greeted the discovery of the antitoxins led at first to a misconception of the mechanism of the protection afforded animals by the inoculation of bacterial cultures. It was at once supposed that in the majority of instances, for example, in the immunity against spirilla, the protection was antitoxic. In 1894, however, Pfeiffer[20] began his studies with cholera infection and immunity which led to a revolution in our conception of acquired immunity from bacteria. Pfeiffer injected cholera spirilla into the peritoneal cavity of guinea-pigs that had been immunized by means of subcutaneous inoculations of this micro-organism. Whereas in the normal peritoneum the spirillum increases rapidly in numbers and leads to a fatal infection, in the immunized peritoneum the vibrios are found to undergo rapid lysis; preparations made at intervals from the peritoneal exudate show increasing numbers of deep-staining granules which finally replace the normal vibrios entirely. Coincidentally with this "bacteriolysis" the animal recovers. Pfeiffer further showed that although his serum obtained from immunized guinea-pigs had in itself no destructive power for the vibrios *in vitro*, it would, when mixed with them and injected into the peritoneal cavity of normal guinea-pigs lead to the specific form of lysis.

Bordet[21] was first to offer the correct explanation of "Pfeiffer's phenomenon," as it is called. He found that if the anticholera serum was employed soon after removal from an immunized guinea-pig it would suffice alone to destroy the vibrios in the test-tube. Heating to 55 C. or conservation for several days destroyed this lytic property, but the property could be restored to the inactive cholera serum by the addition of fresh normal guinea-pig serum which in itself has no lytic property. In other words, the specific lytic effect of anticholera serum is due to the cooperation of two substances, one of which occurs in all fresh normal serums, is destroyed by heat, is non-specific and is identical with Buchner's alexin (Ehrlich's complement). The second substance, the *substance préventive* or *substance sensibilisatrice* (Ehrlich's amboceptor) as Bordet called it, is specific, occurs only as the result of immunization, and resists heating to 55 C.

The further investigation of the finer interaction of these two substances concerned in bacteriolysis was rendered possible by Bordet's discovery of the artificial hemolysins in 1898.[22] Bordet found that the blood-serum of guinea-pigs that have received several injections of rabbit blood acquires the property of specific destruction of rabbit red blood-cells. He was further able to show that this corpuscle destruction or hemolysis is also brought about by the combined action of alexin with a specific sensitizer. These fundamental facts have since been amplified to an extraordinary extent by the studies both of Bordet and of Ehrlich and his school.[23] Anti-hemolysins, composed in turn of antialexin and antisensitizer, have been described and their study has given great insight into the action of the antibodies in general. Ehrlich's explanation of the interaction of antibodies and their antigens has been on the line of organic chemical reactions, whereas Bordet has persistently favored an explanation in harmony with the laws of physical and later of colloidal chemistry. There is now little doubt that the colloidal theory best agrees with the facts.

Many other questions of at first academic and of later practical interest have arisen from the studies on bacteriolysins and hemolysins. Thus the dispute between Bordet and Ehrlich as to the unity or the multiplicity of alexins gave rise to Bordet's "reaction of fixation" which has served as a most valuable diagnostic test of bacterial infections and has been particularly exploited in Wassermann's test for syphilis. A study by Bordet and Gay[24] in refutation of Ehrlich's conception of the sensitizer as an amboceptor led to the conglutination reaction which promises much as a method of serum diagnosis.[25]

As may well be conceived the explanation of acquired anti-infectious immunity on purely humoral lines is certainly suggested by the work of Pfeiffer, Bordet and Ehrlich and such explanation would seem to be in essential disagreement with Metchnikoff's phagocytic theory as applied to this type of immunity. The disagreement is, however, more apparent than real. Metchnikoff soon pointed out that Pfeiffer's phenomenon of extracellular bacteriolysis is exceptional and occurs practically only with such delicate micro-organisms as the vibrios. In even this instance Metchnikoff believes that the lysis is preceded by a destruction of leukocytes, which liberates the cytase or alexin from them into the surrounding fluid.

But even though it becomes generally accepted, as seems likely, that all alexin is derived from leukocytes the relation of Bordet's sensitizer to phagocytosis in acquired immunity remains to be explained. It is admitted that the sensitizer of immune serum is free even in the plasma and in no sense an artificial product, as may be the case with alexin. The work of Denys and his pupils, which began in 1895,[26] threw the first light on this important question. Denys studied the protective and curative effect of an antistreptococcus serum on rabbits that had been infected with the streptococcus. He finds that the immunity afforded by this serum is due to its effect on the micro-organisms which renders them more readily taken up by phagocytes; the leukocytes themselves in the immunized animals do not differ from those of the normal animal. In 1902 Savtchenko[27] noted that a hemolytic serum likewise increases the susceptibility of the specific red blood-cells to phagocytosis. Neufeld and Rimpau[28] have followed the lead suggested by Denys and worked out with great care the effect of their "bacteriotropins," by which name they designate those substances in an immune serum which favor phagocytosis.

In 1903 A. E. Wright[29] described under the name of "opsonins" certain substances in the serum of human beings which when estimated quantitatively are supposed to indicate the intensity of the resistance of the individual to a given infection. Wright was able apparently to increase these protective opsonins, in case of lack, by "vaccination" with killed cultures of the micro-

20. Pfeiffer: Ztschr. f. Hyg., 1894, xviii, 1.
21. Bordet-Gay: Studies in Immunity, pp. 8 and 56.
22. Bordet-Gay: Studies in Immunity, p. 134 and subsequent chapters.
23. Ehrlich-Bolduan: See Collected Studies in Immunity, ed. 2.
24. Bordet-Gay: Studies in Immunity, p. 363.
25. Gay and Lucas: Proc. Soc. Exper. Biol. and Med., 1910, vii, 21.
26. Denys and Leclef: La cellule, 1895.
27. Savtchenko: Ann. de l'Inst. Pasteur, 1902.
28. Neufeld and Rimpau: Deutsche med. Wchnsch., 1904, and Ztschr. f. Hyg., 1905.
29. Wright, Sir A. E.: Studies in Immunization, Constable, 1909.

organism in question. Although Wright's work has the merit of attracting attention to the principle of cure by vaccination it is marred from a scientific standpoint by his failures to recognize the relation of his "opsonins" to the substances described by Denys, and particularly by the lack of fundamental experimental work on animals which subsequently in the hands of others has given us a more judicious attitude towards the theoretical and practical interest of his discovery. Animal experimentation has shown that even under the best experimental conditions, little value can be ascribed to Wright's "opsonic index" as an indication for specific treatment, grateful as such a method would be if accurate. Experimental work has further shown that the "immune opsonins" of Wright are probably identical with the "bacteriotropins" of Neufeld and Rimpau and probably differ quantitatively only from Wright's normal opsonins. Although Wright's first observations, which were not made under the best experimental conditions, led him to believe that his opsonins differed from the sensitizers of Bordet (Ehrlich's amboceptors) inasmuch as they are apparently thermolabile (55 C.), there now seems no reason for this artificial separation.

The following summary is, I believe, consistent with the facts at our disposal and is offered as a simple explanation of anti-infectious immunity. Bacteria are destroyed in the body of an immune animal by the action of two substances, the sensitizer which is the specific result of immunization, and which lies free in the plasma, and the alexin which under usual conditions in the body lies within the phagocyte. If phagocytosis has taken place the alexin works *in situ;* if phagolysis occurs the alexin is liberated and acts in the fluid extracellularly. There is, further, reason to believe that the more potent the sensitizer the more likely it is that phagolysis should occur, and in all events the greater the sensitization is the less the alexin required.

In vitro the bacteria are destroyed in a similar manner except that under such conditions when fresh serum is employed free alexin is the rule. When the alexin employed has been retained in the phagocyte as in the case in opsonin experiments, the destruction is intracellular subsequent to phagocytosis. The reason that normal opsonins are apparently thermolabile is because the normal extracellular alexin is destroyed and the normal opsonin (sensitizer) is not sufficiently potent to draw out the intracellular alexin or to cause the opsonized bacterium to be drawn within the cell. The destruction of the extracellular alexin is immaterial, however, in the case of immune opsonins (bacteriotropins) as their strong sensitizing power either makes use of a trace of alexin liberated by the phagocytes or else suffices to draw the treated bacteria within the cell.

The discovery of the artificial hemolysins gave rise to the hope that specific immune serums for other animal cells might be produced. The possibility of a specific epitheliolysin was particularly alluring in view of treatment of malignant tumors. The general conception of the cytolysins now is that they are specific for any cell of the species that has furnished the antigenic tissue rather than for any particular type of cell.

At this point may be mentioned certain other properties of immune serums that were discovered in connection with the studies on bacteriolysis and hemolysis. Charrin and Roger[30] noted as early as 1889 that a specific serum which was active against *B. pyocyaneus* would clump cultures of this bacterium and the specific nature of this phenomenon of agglutination and many of the factors that control it were worked out by Bordet in 1895.[31] The applicability of the agglutination reaction in the diagnosis of bacterial infections was exploited by Gruber and Durham in 1896.[32] The early work of Kraus, 1897,[33] of Tschowitsch[34] and of Bordet, 1899[35] with bacteriolytic and hemolytic serum disclosed the specific phenomenon of precipitation, which was soon applied in the well-known forensic test for blood by Wassermann and by Uhlenhuth.

In concluding this outline of the development of immunology mention should be made of the interesting phenomenon of anaphylaxis or increased susceptibility, which under certain conditions follows injection of harmful proteins such as bacteria or of non-toxic proteins like horse serum. Rosenau and Anderson[36] and Otto[37] (1906) were first to draw attention to this condition, although it had been previously described and named by Richet. Rosenau and Anderson described the violent convulsive reaction, frequently followed by death, which follows the injection of horse serum in guinea-pigs that have previously received a minute dose of the same substance. Similar reactions have been studied following injections of bacteria. This extraordinary condition, which is apparently the opposite of the protective reactions of immunity, bears some mysterious but undoubted relation to the latter process. Although the outcome of the numerous studies on the relation of anaphylaxis to immunity now in progress are doubtful, little doubt may be entertained as to their theoretical interest and practical importance.

CONCLUSION

This article has attempted to outline step by step the development of immunology, a science worthy of specialized consideration both on account of its biological interest and its vital applicability. Nothing more than a suggestion of the application of immunology has been given. It has been evident that no true conception of the principles of immunity was possible until the methods of experimentation on living animals were applied. And each successive principle determined has of necessity depended on further animal experimentation. The sacrifice of animal life necessitated in acquiring our present knowledge of the mechanism of animal resistance to disease would seem justified from the standpoint of theory alone. In view of the present and potential value of applied immunology in the diagnosis, the prevention, and the cure of human and animal disease, skilled animal experimentation necessitates the encouragement of every humanitarian.

University of California.

30. Charrin and Roger: Compt. rend. Soc. de biol., 1889, p. 667.

31. Bordet-Gay: Studies in Immunity, p. 142.
32. Gruber and Durham: München. med. Wchnschr., 1896, p. 285.
33. Kraus: Wien. klin. Wchnschr., 1897, No. 32.
34. Tschowitsch: Ann. de l'Inst. Pasteur, 1899.
35. Bordet-Gay: Studies in Immunity, p. 148.
36. Rosenau and Anderson: Jour. Med. Research, 1906, xv, 179.
37. Otto: Leuthold Gdnkschr., Berlin, 1906.

Differential Diagnosis of Traumatic Neurasthenia.—Head injuries and railway accidents causing cerebral commotion, without producing actual brain lesions, may set up a traumatic neurasthenia, but general paralysis of the insane not infrequently follows a head injury in an individual predisposed by his past life to that disease, and it may be difficult to decide whether the patient is suffering from traumatic neurasthenia or the prodromal stage of general paralysis, unless a careful examination and investigation be made.—F. W. Mott, in the *Practitioner.*

TRANSFUSION IN PELLAGRA

A REVIEW OF TWENTY CASES *

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August 4, 1908, I employed the first transfusion in the terminal stages of pellagra. Encouraged by the immediate improvement and rapid recovery in this patient, in collaboration with Dr. Gilman J. Winthrop, I have since transfused nineteen additional patients in the terminal stages of the disease.

Whereas we are unable to draw positive conclusions from this number of cases, we believe that certain valuable deductions may be derived from the statistics which they present. We have endeavored to preserve a spirit of scepticism and unbiased judgment throughout our investigations, and to draw accurate conclusions from the data presented.

Transfusion has been resorted to only in cases in the last stages of pellagra, or steadily retrograding under prolonged and careful treatment by approved therapeutic measures. To illustrate the type of cases in which transfusion has been employed, it is sufficient to state that two patients were moribund at the time of operation, and one patient died on the railway train twenty minutes before arriving at Mobile for transfusion.

	Cases
Transfused	20
Females, aged 22-53	16
Males, aged 3-42	4

We note that the females (16, or 80 per cent.) were four times as numerous as the males (4, or 20 per cent.).

	Cases
Recoveries (60 per cent.)	12
Deaths (40 per cent.)	8
Relapse (8.3 per cent.)	1

This relapse occurred two years after recovery in an institutional patient exposed to reinfection.

	Cases
Temporary improvement followed by death	2
No improvement following transfusion	6
Complications incompatible with recovery	2

Patient 1, a male, aged 42, whose case was complicated with tuberculous peritonitis, showed temporary improvement for several days, but died one month after the operation.

Patient 2, a male, aged 3, showed distinct improvement following transfusion, but died eight days later from intestinal perforation.

	Cases
Complications presenting insufficient flow of blood, followed by death	2

In Case 1 the only available donor permitted insufficient transfusion through a severe degree of arteriosclerosis. In Case 2 inadequate operative surroundings and a neurotic 14-year-old boy as the only available donor permitted insufficient transfusion.

	Cases
Patients moribund at operation followed by death	2

It will be noted that four of the eight cases in which death resulted might well be excluded, for the following reasons: Two patients received an inadequate amount of blood at transfusion and two were moribund at the time of operation. Excluding these four cases, the mortality rate would be 25 per cent. as compared with 40 per cent. in the entire series. Considering the grave mortality rate in the type of patients on whom transfusion was performed, we can but feel that our mortality rate of 40 per cent. in the entire twenty cases compares most favorably with the mortality (80 to 90 per cent.) in this type of cases treated by other therapeutic procedures. We have been unable to observe that transfusion was a direct factor of death in any of the cases; the deaths followed in periods of from three hours to one month after operation. One patient manifested symptoms of cocainism, necessitating a termination of transfusion at the end of fifteen minutes. This patient, however, made an excellent recovery from pellagra. Neither hemolysis nor agglutination, thrombosis nor embolism, have been observed in any of the cases.

Of the recovered patients (seventeen) there were: females, eleven (68.8 per cent), and males, one (25 per cent). We note a far greater percentage of recovery in the females. All the recovered patients presented distinct and severe lesions of pellagra; there were marked emaciation, asthenia, anemia, reflex excitability, and in many cases grave mental changes. Severe pellagra erythema, stomatitis, and diarrhea were present in a majority of the cases. Within a few days after transfusion there was either alleviation or disappearance of all the symptoms of pellagra; there was a rapid disappearance of the pellagra erythema, stomatitis and diarrhea, and also a gradual alleviation of the mental and nervous symptoms. In several cases there was an astonishing improvement in the patient's mental condition, shortly following operation. In all cases there was rapid increase in the patient's hemoglobin index, a rapid return of body strength, a return of digestive faculties, and an increase of body weight. All the recovered patients gained from three to eight and one-half pounds in the first week following transfusion; one patient gaining thirty-four pounds within eleven weeks. All the recovered patients have returned to a normal condition within from one to four months after operation; several are in better physical condition than they have presented for years. The patient relapsing two years after transfusion was living in an institution and was constantly exposed to pellagra, and it is fair to assume that this case may be considered a re-infection, rather than a relapse.

It is but just to state that all approved therapeutic procedures were employed in the recovered cases, both previous to and following the operation. As these procedures were employed without beneficial effect previous to the operation, it is fair to asume that they were unimportant factors in the recoveries after transfusion.

We have been unable to ascertain a constant clinical sign that would indicate a certainty of recovery following transfusion. A moribund state of the patient and complication of pellagra with pathologic conditions contra-indicate the employment of transfusion. The necessity of resorting to transfusion can be ascertained only on the appearance of positive signs of retrogression under approved institutional and constitutional therapeutic agents.

A majority of the patients referred for transfusion have recovered through hygienic, supportive treatment, not necessitating the employment of transfusion.

Transfusion, itself a delicate procedure, should be attempted only by those experienced in the technic, with a full knowledge of the dangers of the operation, and in adequate surroundings for its performance, and with the proper post operation treatment.

In these transfusions we have endeavored to employ donors who have lived in the same environment as the recipients, assuming that such donors who have not contracted pellagra possess a certain degree of immunity.

Transfusion was resorted to from donors who had recovered from pellagra in three cases; recovery occurred in one case (33⅓ per cent.). This case relapsed two years following transfusion.

Transfusion was made from donors who had never had pellagra in seventeen cases; recovery ensued in eleven cases (64.7 per cent.).

* Read before the Southern Surgical and Gynecological Association, Nashville, Tenn., Dec. 15, 1910.

We may assume that there is, at least, no preference of a donor who has had pellagra over a donor who has never had pellagra.

Transfusion was resorted to from donors who were relatives of the patient, but who had never had pellagra, in seven cases. Recovery occurred in three cases (42.8 per cent.).

Transfusion was made from donors who were not relatives and who had never had pellagra in ten cases; recovery in eight cases (80 per cent.).

Here we may assume, at least, that there is no ground for preference of the use of a relative over the use of a non-relative.

We are unable to state from the statistics available that there is any immune principle transferred by transfusion. It is probable that any beneficial results obtained may be attributed to the relief of the existing anemia, permitting the patient's organism to approach its normal functional activities and thus to combat the progress of the disease.

CONCLUSIONS

In transfusion in twenty cases of pellagra, we have found no ill effect resulting to the patients directly from the operation. We may safely resort to transfusion in the severe type of case, steadily retrogressing under approved therapeutic procedures.

We have noted no advantage in the employment of a donor who has recovered from pellagra as compared with the donor who has never had pellagra.

There is apparently no advantage in the use of a relative for a donor as compared to the use of a non-relative.

The recoveries (60 per cent.) following transfusion in the grave type of cases, compares most favorably with the recoveries (10 to 20 per cent.) in the same type of cases in which other therapeutic measures are employed.

The employment of transfusion in the terminal stages of pellagra must be undertaken with a full knowledge of the difficulties and dangers of the operation. Without careful selection of the cases and unprejudiced conclusions, this procedure will fall into an undeserved ill repute.

202 Conti Street.

EXPERIMENTAL POLIOMYELITIS IN MONKEYS

NINTH NOTE: IMMUNITY PRINCIPLES; EFFECTS OF HEXAMETHYLENAMIN (UROTROPIN); EARLY DIAGNOSIS; VIRUS-CARRIERS*

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In previous publications,[1] we have shown that an attack of experimental poliomyelitis protects against reinfection with the virus of the disease, and that the blood of monkeys and of persons who have recovered from the acute effects of epidemic poliomyelitis contains neutralizing principles for the virus on which their immunity must be considered to depend. The immunity principles have been shown to reside in the blood-serum and are, therefore, probably of the nature of antibodies. The course of epidemic poliomyelitis in its acute stage is not known to be influenced by any form of medication, whence it follows that it is a self-limiting process, as are so many of the infections; and at present we must view this condition of self-limitation as being determined by the elaboration within the body, under the influence of the virus of the disease, of substances of the nature of antibodies, the so-called immunity principles.

IMMUNITY PRINCIPLES IN ABORTIVE CASES

What have come to be designated abortive cases of epidemic poliomyelitis are now playing an important part in the discussion of the mode of transmission of the disease. Our knowledge of this class of cases is still very imperfect, and doubt even exists of their occurrence at all. Until greater refinement and accuracy are introduced into diagnosis, this doubt must continue to arise. It is desirable, therefore, to present evidence that bears on the occurrence of this type of the disease.

It is possible by means of neutralization tests to determine in a given instance whether an attack of poliomyelitis was or was not suffered, and this independently of the circumstance whether or not paralysis was present. The test is made by mixing the blood-serum with the filtered virus, incubating the mixture at 37 C. for a few hours, and injecting it into a monkey. Normal human serum has no power to neutralize the virus, while the serum from recovered cases of poliomyelitis possesses this power. Dr. Richard Stein, of New York, kindly supplied us with the blood taken from a patient suspected of having passed through such an abortive attack, in which the neutralizing immunity principles were demonstrated. This method does not provide a means of diagnosis, but it is of value in establishing the occurrence of abortive cases of epidemic poliomyelitis.

DISTRIBUTION OF IMMUNITY PRINCIPLES

Up to the present, the immunity principles have been established to exist in the blood of men and monkeys who have passed through the acute stage of the disease. We have already emphasized the lesions of the leptomeninges that result from infection with the virus of poliomyelitis and the changes, corresponding to them, that take place in the cerebrospinal fluid. It is of interest to ascertain whether or not the immunity principles exist in the cerebrospinal fluid, whether or not they may originate there, and, hence, whether or not the control of the lesions of the meninges and the nervous tissues is in any degree dependent on such a local production. We are enabled to determine these points by reason of the circumstance that the secretion of antibodies from the blood into the subdural space and the cerebrospinal fluid takes place, under normal conditions, practically not at all. Should they be found there, they must either have arisen locally, or have been secreted there from the blood because of abnormalities that increase the permeability of the blood-vessels.

We have examined a number of specimens of the cerebrospinal fluid obtained from patients at various periods after the disappearance of the acute stages of poliomyelitis, but at times when paralysis of one or more extremities still persisted. In some instances, the blood and cerebrospinal fluid were taken simultaneously and both tested for neutralizing power. The results are instructive. During the first one or two months, the immunity principles may exist both in the blood and in the cerebrospinal fluid, but, even at this early period, the principles demonstrated to be present in the blood have not always been detected in the fluid. At later

* From the Laboratories of the Rockefeller Institute for Medical Research.

1. The previous work is summarized and discussed by one of us (Flexner) in THE JOURNAL A. M. A., Sept. 24, 1910, p. 1105.

periods and after one or more years, it is highly exceptional to secure neutralization of the virus by means of the fluid. The conclusion, therefore, is that during the earlier stages of epidemic poliomyelitis, when the blood-vessels of the leptomeninges and the central nervous system are abnormally pervious, the immunity antibodies escape into the membranes and nervous tissue; but as the vessels return to normal, the antibodies are no longer secreted and thus tend to disappear. It is probably in exceptional instances only, in which the vascular repair is delayed, that the secretion continues over a long period of time.

The immunity principles persist in the blood for several years, and it is probable, therefore, that they are elaborated in the situations, namely, in the lymphatic and blood-forming organs, in which antibodies in general are prepared. This point is of interest in view of our meager knowledge of the occurrence of the virus of poliomyelitis in organs at a distance from the central nervous system. In view of the facts stated, it may be deduced that to the circulating antibodies, rather than to those locally present in the cerebrospinal fluid, are due the limitation and repair of the damage inflicted on the nervous system by the infection, and the enduring protection of the body from reinfection.

EFFECTS OF HEXAMETHYLENAMIN

Since Cushing and Crowe showed that hexamethylenamin (urotropin) is in part eliminated into the subdural space, the drug has been employed to produce disinfection of the cerebrospinal fluid. It has been applied to the treatment of epidemic poliomyelitis by Dr. Roger S. Morris, of Baltimore, who first drew our attention to the matter, and by others. It is highly difficult, if not impossible, to determine clinically in human beings whether its administration is of any value, since its use has been empiric and it is clearly not a specific. However, it may still not be without a degree of beneficial action.

The drug is well borne by the monkey and we have tested its action under a variety of conditions on this animal. When a large dose of the drug is administered by mouth, its presence can be demonstrated by chemical tests in the cerebrospinal fluid soon afterwards. We have ascertained that when the virus of poliomyelitis is injected intracerebrally in monkeys in which the hexamethylenamin is already present in the fluid, and the drug is then administered by mouth daily thereafter, that in a proportion of animals so treated, but not in all, first, the incubation period of the disease is prolonged (from six to eight days to twenty-four days), and, next, the onset of paralysis is entirely prevented. When the drug is administered by mouth and the immune monkey-serum by injection into the subdural space, the paralysis can also be prevented and possibly with greater certainty.

We have not yet determined whether the animals surviving infection with the virus as a result of the administration of hexamethylenamin exhibit any greater resistance to reinoculation than untreated animals do to a primary inoculation. Should the multiplication of the virus have been entirely suppressed, we should not expect to find an increased degree of resistance. In immune serum protection, the susceptibility to reinfection is about equal to that shown by untreated animals.

In considering the significance of these observations, two points are of importance: first, it has now been shown that drug control of the virus of poliomyelitis within the body is a possibility; but, second, that the successful results have been secured in inhibiting infection and not in restraining an already established infection with the virus.

EARLY DIAGNOSIS

The importance of securing methods of early and certain diagnosis of epidemic poliomyelitis is self-evident. With the growing significance of the abortive and mild cases in disseminating the infection, and with the increasing promise of a better therapeutic control of the disease, early diagnosis becomes a necessity. We have already pointed out that by taking advantage of the changes which regularly take place in the cerebrospinal fluid, it is possible, early in the course of the infection, to arrive at a certain diagnosis. We based this view and recommendation on the condition of the cerebrospinal fluid occurring in monkeys successfully inoculated with the virus of poliomyelitis. In these animals the increase in cells and protein takes place and reaches its height prior to the onset of the paralysis, after which there tends to be a rapid diminution in the protein content of and a slower reduction in the number of cells within the fluid. The cerebrospinal fluid is incorrectly described as "clear" in the beginning stages of the lesions of the meninges; and this error has arisen because practically all the examinations have been made after the appearance of the paralysis or other severe symptoms, and usually many days after their appearance.

The cerebrospinal fluid at the height of the lesions in the meninges exhibits a very slight turbidity or opalescence, best seen on gently agitating the fluid and due to a large increase in white corpuscles. It contains an excess of protein matter. The white corpuscles consist partly of polymorphonuclear and partly of mononuclear (lymphatic) cells. The excess of protein is readily detected by applying Noguchi's butyric acid test. Very rarely, the fluid is distinctly turbid and the polymorphonuclear cells predominate. Bacteria are absent. In rare instances, it becomes necessary to exclude tuberculous meningitis, which can be done by an examination for tubercle bacilli.

We have been able in a case of Dr. L. F. Frissell's[2] to determine that the facts just stated hold good also for human beings, the victims of epidemic poliomyelitis. An early and certain diagnosis of the disease in a suspicious instance has been made by examining the cerebrospinal fluid in the manner indicated. The paralysis was observed to follow the height of the cellular and protein changes in the fluid, and the cessation of the extension of the paralysis to coincide with a beginning reduction in these changes, as is the case in the monkey.

VIRUS-CARRIERS

In monkeys the virus of epidemic poliomyelitis passes from the meninges into the nasal mucosa, and infection can be readily achieved by bringing the virus into contact with the scarified mucous membrane. We have, therefore, suggested that the nasopharynx acts in human beings as the portal of entry of the virus into the central nervous system, as well as the source of its dissemination to other human beings. Concerning the habitat of the virus in nature, outside of infected persons, we have had no definite knowledge. The determination by Osgood and Lucas[3] that the virus can survive in the nasopharynx of the monkey for nearly six months and long after the acute stage of the disease has passed has, therefore, high

2. Report to be published soon.
3. THE JOURNAL A. M. A., Feb. 18, 1911, p. 495.

significance with reference to the epidemiology of the disease. At this late period, the virus no longer survives in the nervous system. Indeed, the virus has not been detected in the nervous system after the lapse of three or four weeks, and often not after the first few days following the appearance of the paralysis. We have just demonstrated the virus in the nasal and pharyngeal mucosa of a monkey which survived the paralysis more than four weeks, and failed, in the same animal, to detect it in the spinal cord.

These observations indicate that monkeys successfully inoculated become, in some instances after recovery from the effects, passive carriers of the virus. Whether the same fact will prove to be true of human beings remains to be determined. In no instance has the nasal and pharyngeal mucosa of a person who has succumbed to epidemic poliomyelitis been examined for the virus. It has now become imperative to make such examinations; for on the results will depend in considerable degree the measures which will come to be adopted to control the spread of the infection.

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CULTIVATION IN VITRO OF RAT SARCOMA

A STUDY IN IMMUNITY*

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NEW YORK

In a recent note[1] we showed that the method of cultivating tissues *in vitro,* devised by Harrison for the study of the developing nerve-fiber in frog embryos, and applied with modifications to the tissues of higher animals by Carrell and Burrows, could be adapted easily to the transplantable sarcomata of rats and mice. The present paper is concerned with the application of this method to the investigation of the nature of tumor immunity.

The phenomena of resistance and susceptibility to the inoculable tumors of these animals have been exhaustively studied. It may be stated summarily that immunity to tumor growth does not correspond to any of the types of immunity produced by the reaction of the body to infective organisms and their products. Specific antibodies have never been demonstrated in the blood-serum of animals immune to cancer. Moreover, Russell[2] has shown that, in immune mice, inoculated cancer tissue fails to grow because of the absence of a specific stroma reaction on the part of the host, and not because of the presence of cytotoxic or cytolytic substances acting on the implanted grafts. Or, stated differently, in immune animals, the implanted cancer cells lose their power of calling forth a stroma reaction. Nothwithstanding the absence of a stroma, the tumor cells remain alive and proliferate for eight to ten days.

Sarcoma cells growing in blood-plasma find in the fibrin network an artificial stroma, so that the influence of the plasma alone may be held accountable if sarcomatous tissue, which grows very readily in normal plasma, fails to grow in the plasma of immune animals.

Two kinds of immunity to cancer are recognizable, natural and artificial. The percentage of naturally immune animals (nullers) varies with age and with different varieties and strains. Old animals are, as a rule, less susceptible than young. Artificial immunity may be induced by the injection of suitable quantities of certain tissues, as, blood, spleen, embryonic tissues, etc.

In the present experiments we have used five types of immune animals: (1) nullers from a strain of rats in which sarcoma inoculations yield 80 to 90 per cent. of "takes"; (2) nullers from a hooded variety of rats in which the percentage of "takes" is only twenty to thirty (racial immunity); (3) immune old animals whose immunity was most probably attributable to their age; (4) animals immune to both rat sarcoma and carcinoma, and which had received immunizing doses of mouse sarcoma (pan-immunity); and (5) artificially immunized rats. We have used the plasma from animals of each of these five types of immunity, and have found that rat sarcoma grows in all without exception. The character of growth differed in no essential way from that observed in control specimens in which normal rat plasma was used. These results are in harmony with the observations of Russell which we have mentioned already.

THE INOCULATION OF RATS WITH SARCOMA GROWING IN VITRO

To test the viability of sarcomatous tissue growing *in vitro,* we have inoculated rats with pieces of sarcoma which had grown for three days at 37 C. in normal rat plasma and have obtained tumor growths. In the same way sarcoma growing in the plasma of immune rats has been transmitted to normal animals. The plasma from immune animals does not seem, then, in this short time, to influence deleteriously the subsequent growth of sarcoma tissue when this is inoculated into animals.

SUBCULTURES

Sarcoma growing *in vitro* may be readily grown in subcultures by transferring the original piece or a portion of the outgrowth to new plasma. Prolongation of life seems dependent only on the renewal of the medium. We have specimens growing at present which have been subcultured in this manner five times at intervals of two to four days. The plasma used was obtained from normal and immune animals, and the growth was as vigorous in the one as in the other.

437 West Fifty-Ninth Street.

* This research was conducted under the George Crocker Special Research Fund.

* From the Department of Pathology, College of Physicians and Surgeons, Columbia University.

1. Lambert and Hanes: Growth in Vitro of the Transplantable Sarcomas of Rats and Mice, THE JOURNAL A. M. A., Jan. 7, 1911, p. 33.

2. Russell, B. R. G.: Nature of Resistance to the Inoculation of Cancer, Third Scientific Report of the Imperial Cancer Research Fund. 1908.

Local Cutaneous Reaction to Sodium Glycocholate in Syphilitics.—Loeper and Desbouis state that intradermal injection of a drop or two of a 0.5 or 0.2 per cent. solution of sodium glycocholate failed to cause any reaction in sixty-three healthy persons or those with non-venereal affections, while a pronounced local reaction followed invariably in eighty-one persons in the first, second or third stage of syphilis, with only a single exception in the latter class. A positive reaction was also obtained in one of nine patients with tabes dorsalis or paresis. The local erythema or ulceration developed from the eighteenth to the thirty-sixth hour and persisted for from two to five days. The findings with this "dermo-reaction," as they call it, paralleled with precision the Wassermann reaction and the Porges precipito-reaction. As there is nothing specific about the sodium glycocholate, the reaction, they state, merely indicates some profound biologic modification of the organism by the parasite and, like all biologic reactions, is not of invariable occurrence. It gave useful information in their experience in several dubious cases, differentiating the syphilitic from tuberculous and other ulcerations, etc. Their communication is published in the *Progrès Médical,* Jan. 21, page 231.

ARSENIC IN SYPHILIS

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That mercury does not cure syphilis in all cases has been observed for many centuries. Christian Friedrich Harles[1] mentions the fact that Fallopius and Libavius used arsenic in the treatment of syphilis. F. Hoffmann[2] in the middle of the eighteenth century used the flores auri pigmenti diaphoretici, a sulphid of arsenic, satisfactorily in the treatment of "lues venerea inveterata," in cases in which mercury proved of no avail, and in cases in which ptyalism and mercurial poisoning were produced. Hoffmann asserts that he obtained excellent results by the internal administration of arsenic in the treatment of indolent syphilitic lymph-nodes, cachexia syphilitica, and in syphilitic periostitis. C. Ziegenbuehler[3] used arsenic internally in the treatment of syphilitic arthritis with success. Horn[4] and Renner[5] treated old inveterate syphilitic lesions successfully with white arsenic. The use of arsenic in the treatment of syphilis is, therefore, by no means a modern invention.

Let us now see how salvarsan has fulfilled Ehrlich's ideas in the treatment of syphilis. Was the early enthusiasm which followed the use of this preparation an enthusiasm largely due to the fact that a new remedy was announced by one of the greater leaders in medicine, justified? Are the results following the use of salvarsan comparable to those which we expect from the administration of quinin in malaria? The answer to the question has been furnished by Neisser at the medical congress at Koenigsberg, Sept. 20, 1910. Neisser, a most profound observer, whose use of salvarsan has been very extensive, recommends a primary injection of salvarsan and repeats this injection after from three to six weeks; in nearly all cases he subjects the patient during this three or six weeks' intermission to a regular treatment with mercury in the form of injections with gray oil. This procedure is to be repeated until a permanent negative Wassermann reaction is obtained.

Despite the reported apparently brilliant results that have been obtained with the injection of salvarsan recurrences are being reported with greater and greater frequency, forcing us to the conclusion that a *sterilisatio magna* in Ehrlich's sense is in many cases not possible. The use of mercury and potassium iodid and in some cases quinin, in the treatment of syphilis cannot in my opinion be eliminated at the present time, even though I believe that potassium iodid will not cure syphilis, but mercury has cured in many cases, which some of the salvarsan enthusiasts seem to have forgotten entirely. The enthusiasm reached such a point that it was predicted that such metasyphilitic diseases as tabes and general paresis were a thing of the past.

In the treatment of syphilis, there are undoubtedly many factors which Ehrlich's inspiring researches do not fully explain. Why, for instance, do cases occur in which mercury brings about a rapid disappearance of all syphilitic manifestations, although the Wassermann reaction remains positive? Why does an early tabes and progressive paralysis sometimes occur in certain patients who have been subjected to a thorough course of treatment? Why does a positive Wassermann reaction persist years after the primary infection in some patients who have not been treated with mercury, and who nevertheless do not acquire tabes or paresis? On the other hand, it is well known that there are cases, an appreciable number of them, which do badly under any form of chemotherapy.

The most important field for the use of the Ehrlich-Hata preparation is in the acute stages of syphilis, in which forms this remedy has proved of paramount value. Even if it does nothing more than to heal the primary lesion as rapidly as it does, and thereby prevent a further invasion of the system, and close an avenue of infection to others, it has accomplished a great deal. In the treatment of the chronic inveterate forms of syphilis its use has, as yet, not been sufficiently extensive to enable us to judge of its powers.

In the treatment of some of the diseases of the blood-forming organs, severe anemia, pernicious anemia, pseudoleukemia and lymphatic swellings of various origin, including glandular tuberculosis, its use has not been attended with success. In these maladies the inorganic preparations of arsenic act more rapidly and are more lastingly efficient than the organic preparations, a response similar to those noted after the administration of the organic and inorganic iron preparations in the treatment of the anemias and of chlorosis.

In these maladies and in cases of inveterate syphilis, which responded no longer to mercury, I have used successfully a solution of arsenic, which I described[6] in 1909. The solution consists of 1 gm. arsenic trioxid and 2.25 c.c. normal soda solution in 100 c.c. of distilled water, representing a 1 per cent. solution of sodium arsenite, a solution which is very slightly alkaline. Its subcutaneous injection does not cause more inconvenience than an injection of morphin; its intramuscular injection is painless. Lately I have used the intramuscular method (glutei) exclusively. I have given these injections hundreds of times and I have never seen even the slightest tendency to suppuration. The skin before injection is disinfected with an alcoholic solution of iodin and potassium iodid, and the site of injection is sealed with a mixture of this iodin solution with tincture of benzoin in the proportion of 1 to 4, a procedure which I have have also reported elsewhere.[7]

I shall briefly report two cases of syphilis in which the results of treatment with my arsenic solution were exceedingly satisfactory.

In a woman, aged 32, in whom the secondary lesions were not affected in the least by injection of mercury for a period of six months, injections of my solution of arsenic brought about a rapid disappearance of all syphilitic lesions after fourteen injections.[8]

A young woman, aged 24, in whom syphilitic manifestations kept appearing for a period of five years after the initial lesion, despite active mercurial treatment, was completely cured after twenty-four injections of my arsenic solution. Repeated Wassermann reactions in this case were entirely negative.

I wish to say a few words regarding the use of certain preparations of arsenic in the treatment of syphilis, which, because of convenience in administration, are extensively used in this country. The sodium salt of cacodylic acid, the sodium dimethylarsenate, for instance, is supposed to possess the advantage of being less poisonous than the other arsenic compounds, and has therefore been recommended especially by the French authors. Fraser of Glasgow has shown, however,

1. Harles, Christian Friedrich: De arsenici usu in medicina, Norimbergae apud Ioan Leonhard Schrag, 1811.
2. Hoffmann, F.: Observat. phys. med. sel. lii, obs. xii.
3. Ziegenbuehler, C.: Jour. d. prakt. Arznk. u. Wundarznk., 1809, v.
4. Horn, H.: Neues Arch. f. med. Erfahr., Berlin, 1807, iv, 257.
5. Renner: Arch. f. med. Erfahr., Berlin, 1812, i, 189.
6. Herzfeld: THE JOURNAL A. M. A., Feb. 13, 1909, p. 557.
7. Centralbl. d. Chir., 1909, No. 24.
8. New York Med. Monatschr., March, 1909, p. 371.

that the non-toxicity of the cacodylates is due to the fact that they are not split up within the body, and pass out in the urine unchanged. Schmiedeberg asserts that only a very minute quantity of the cacodylic acid is set free in the body and that this is excreted by the lungs and causes a disgusting garlic odor to the breath. I mention these facts merely because these preparations have been recommended lately in THE JOURNAL by Murphy and Caffrey.[9] As regards enesol, a French preparation of arsenic that has been recently much in vogue, mainly because of the simplicity of its administration, Bachem[10] asserts that this patented arsenic and mercury mixture is unreliable. The tablets of sodium arsenate on the market for hypodermic use vary in their chemical reaction. Some I found alkaline, some acid; their age is unknown, and their dosage not reliable.

224 West Twenty-Fourth Street.

WEAK MEDICAL SCHOOLS AS NURSERIES OF MEDICAL GENIUS

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The "Report on Medical Education in the United States and Canada," prepared under the direction of the Carnegie Foundation by Mr. Abraham Flexner, was issued in June and has received in one way or another the criticism of nearly all medical journals and medical associations. Those who have represented the Carnegie Foundation in this matter have sought to examine such criticisms and comments in a fair and reasonable spirit. They have felt pleased that the essential facts stated in the report have received no serious contradiction. They have endeavored, on the other hand, to profit in the further study of medical education by the comments made and the criticisms offered.

It is to be remembered that this report was not a mere criticism of existing conditions. It aimed to point out accurately and frankly the present status of medical education; but it did much more than this. It attempted a thorough-going study of the medical curriculum and it suggested certain broad lines on which the medical curriculum might fairly be expected to develop in the immediate future.

In seeking to serve both of these ends the report inevitably bore with some sharpness on a large proportion of existing medical schools and particularly on those schools which are commercial in their organization; and by "commercial" it was not meant that those who carry on such schools always derive from them much remuneration in the way of money. A commercial school, in the sense in which the term was used in this report, is a school conducted and managed in the interest of the men who control it; these men expect to receive from it some form of reward, either direct or indirect. The report made clear the fact that all such schools are to-day offering a form of preparation for medicine which falls far below the grade of efficiency which the people of every state in the Union have a right to demand. It was to be expected that the sharpest replies to the report should come from those institutions whose organization and plan of control run squarely against the principles it advocates. In particular, the commercial medical establishments have in one form or another replied to the facts laid bare in the report, and the deductions made from these facts, with arguments of varying sincerity and relevancy.

The argument which was most commonly put forth at first was the time-worn plea for the poor boy. The poor school, it was argued, existed for the poor boy. This argument, however, had been so thoroughly anticipated in the report itself and was so clearly not in favor of the poor boy, but in favor of the poor medical school, that it has been practically given up by those who first resorted to its use. In its stead there has been presented in one quarter or another an interesting and singular plea. It is true, say those who put forward this second argument, that a large proportion of the men admitted into the weak medical schools are utterly unprepared; it is true that many of those graduated from such schools ought never to be admitted to practice. Nevertheless, they assert, every now and again in this army of the unfit and the unprepared the school finds some one whom it develops into a great physician or a great investigator—a genius in medical science—and it is worth while, say the advocates of such schools, to keep alive even the weakest medical schools for the sake of the occasional great men whom they may breed.

The most interesting effort to maintain this position which has come under my eye, and one which has been reprinted in many quarters, appeared in an editorial article in *American Medicine* in October. The attention which has been given to it arises largely out of the fact that the author undertakes to rebuke Mr. Abraham Flexner in his criticism of the University of Louisville Medical School on the ground that his distinguished brother, Dr. Simon Flexner, is a graduate of that institution. The article carries with it something of the force of an *argumentum ad hominem*.

The tenor of the article may be judged from the following extract:

> What we have stated about Dr. Simon Flexner—facts that no one will gainsay—show conclusively, though perhaps inefficiently, his great usefulness both to his confrères in medicine and to humanity in general. Measured by his scientific stature, his contributions to medicine and his achievements, Dr. Simon Flexner in the light of his brother's dicta concerning medical colleges and their capacities for developing useful physicians, should be a graduate of some one of the large and best-equipped universities. But alas, fate ordained differently, and, according to the last edition of the *American Medical Directory*, Dr. Simon Flexner, the saver of babies' lives, director of one of the world's most famous and most important scientific institutions, a splendid scholar, one of the world's greatest scientists, a man who already has achieved wonders in his chosen field, and one who, if his life is spared, will probably be responsible for the conquest of several of humanity's most fatal maladies, suffered the frightful handicap of equipping himself for his life's work at the University of Louisville Medical Department. . . .
>
> We realize that there are other phases of the question and a single case like this offers no real opportunities for comparisons or conclusions. But we still think it carries a valuable lesson and proves our contention that after all the personal equation is the important factor. We need all the Simon Flexners we can get, and a school that can help one such man in each decade to embark on a career so useful to his fellows and all mankind, has justified its existence, Brother Abraham notwithstanding.

It would be difficult to misrepresent the facts in the case more completely than they have been misrepresented here. The scientific work which Dr. Simon Flexner has done has all been in relation to the subjects of pathology and bacteriology. In the year 1889, when the University

9. Murphy, John B.: The Arsenical Treatment of Syphilis, THE JOURNAL A. M. A., Sept. 24, 1910, p. 1113. Caffrey, A. J.: Sodium Cacodylate in Syphilis, ibid., Dec. 24, 1910, p. 2211.
10. Bachem: Berliner klin., October, 1910.

of Louisville conferred on him the M.D. degree, the medical school of the University of Louisville had no laboratory for either pathology or bacteriology. Bacteriology was not even taught, and pathology, if taught at all, was taught only in a few lectures given by a practicing physician. The fact is that Dr. Simon Flexner got his real training by ten years of work at the Johns Hopkins University, and these the years which were the most fruitful in its history—the years when Professor Welch, starting with a few chosen pupils, brought up that group of men whose labors have gone so far to revolutionize American medical education in the brief period of two decades. It is difficult to believe that the writer of the paragraphs quoted did not know that Simon Flexner obtained his scientific training, not at the Louisville medical school, but at the Johns Hopkins University.

While this disposes of the *argumentum ad hominem*, it does not affect the underlying question. The assertion that weak institutions deserve to exist on the ground of the few great men who have come up through them is one constantly made. The argument is, however, fallacious. It is not true that a vast horde of unprepared and ill-trained physicians must be turned out on a helpless public in order to obtain an occasional medical genius. The medical genius, when he comes, will in no way be shut out by the fact that the medical school is on decent standards. On the contrary, the very presence of a group of able, distinguished professors will stimulate such men to emulate their example and to live up to their ideals. It will always happen that a few of the best men will come up from the weaker schools; but the fact that strong men can survive a handicap is a strange reason for maintaining handicaps which injure even the strong man and wreck very many others. The medical genius of thirty years ago had no choice; he had to go to a poor school, for no other kind existed. To-day he has a good many alternatives. It is to his interest, genius though he be, that he be compelled to prepare adequately for his medical career and to get a good medical training on this sound basis. Such a policy, of priceless importance to the supposed medical genius, is absolutely indispensable to the man of mediocre ability, and to the public which is at his mercy. The exceptions are apparent rather than real. How much more effective would even the genius have been, if he had not been handicapped by defects of training! Facts showing that a man of high purpose and extraordinary ability may find his way, even under adverse and unfavorable conditions, in no wise furnish an argument, or even an excuse, for making the conditions of education weak and ineffective and for imposing on the public a body of ill-prepared practitioners.

In all the discussion concerning the poor boy and the medical genius it is well that the public and the medical profession should not be drawn away from the fundamental reasons advanced in this report to show that commercial schools are to-day hindering, not helping, the cause of medicine. These reasons, briefly restated, are the following:

1. Such schools are essentially proprietary institutions. They are schools managed by physicians who are to profit both directly and indirectly by the enterprise itself. It is true that some of these are nominally branches of universities, but this arrangement is fictitious. This situation has been proved by long experience to be one under which right educational conditions are impossible. A college or an engineering school run under similar conditions would also become frankly commercial.

2. Schools so run must depend on fees. This means inevitably the recruiting of a large student body from the unprepared and the unfit. In most schools of this character advertising is freely resorted to. To secure the requisite number of men, standards, both of preliminary education and of technical training, must necessarily be kept so low that the large body can be admitted. This results in putting the instruction itself on a low plane.

3. Adequate endowment for medical education can never be obtained so long as the exploitation of medical education for commercial purposes is wide-spread. It is a striking fact in educational conditions in America to-day that medical education has received very meager support. Particularly is this true when it is remembered that the service which the physician renders to the average man of means is the most direct and personal service which any member of society can offer. No other man has so good an opportunity to present the cause in which he is interested as the family physician. Under such conditions the poverty of endowment of American medical education is a standing reproach to American men of medicine. It is due, as everyone knows, to the fact that the average business man understands that medical education has been hitherto a perquisite of the medical practitioner, and so long as that relation remains no large endowment of medicine can be had. Only when the medical school is managed by a board of men not directly concerned in its profits, whether they be in the form of fees or of increased practice, will it stand in the eyes of givers in the same light as other schools.

4. Finally, the continuance of such schools under their present conditions is a direct neglect of the rights of the students themselves and of the public, and this for the reason that so long as the conditions which have been described hold, these schools furnish a sort of education far inferior to that which they ought to give and far inferior as well to that which the public has a right to expect of those who are to practice on it. Such schools are practically in the situation which a commercial house would occupy if it sold its patrons old and antiquated machinery, presuming on their ignorance.

It is interesting to see with what success some medical sects, for example, the osteopaths, have learned from the history of medical education to ignore the claims of the public in their own interest. A brief and meager education is justified on the ground that the "science" is not as yet so comprehensive as "regular medicine" in its scope; but the osteopath, once graduated, is very vague as to just what he should or should not attempt to relieve by osteopathic methods; in consequence, he will at least try to cure everything! The dean of an osteopathic school in California admitted that his students are taught to treat even such affections as gonorrhea and syphilis by "osteopathic" methods. In a number of states the osteopaths are thus conducting schools which, while nominally osteopathic establishments, are really, by the aid of feeble departments of anatomy, pathology, and physiology, turned into the weakest of ordinary medical schools. On the plea that they are training a physician of limited range, they get from the state a concession enabling them to give the degree of D.O. in three years, instead of four; the graduates, though so poorly trained that under any other name they would not be admitted to practice at all, at once spread themselves over the entire field of illness, disease, and accident. But in carrying out this program, the osteopaths have done nothing other than to imitate the example of the weak medical school which goes on furnishing

to those who attend it a form of education enormously behind the requirements of our day and our time, while giving to the public the impression that it is offering facilities of an adequate and satisfactory sort.

One cannot study even the weakest and most unnecessary of these schools without realizing that not infrequently an admirable quality of devotion is to be found in them. The difficulty is that such devotion is mingled with a very large leaven of commercial interest; and in many cases the devotion is offered in a cause which cannot be approved. The betterment of medical education to a stage commensurate with the present status of medical knowledge is a task which will require the unselfish service, first of all, of the members of the medical profession. It is difficult to see how that service can be rendered until the members of this profession themselves are willing to acknowledge that, whatever may have been true of the past, the time has now come when the commercial medical school should disappear and in its place there should stand a school which, however simple and humble it may be, shall be conducted in accordance with an ideal which divorces the teaching of the doctor or surgeon from the question of securing practice and which unites both science and practice for the benefit of those students who are competent to receive the instruction.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

ANTIDYSENTERIC SERUM.—Farbwerke vorm. Meister, Lucius & Bruening, Hoechst a. M., Germany (Victor Koechl & Co., New York).

Antidysenteric Serum.—The blood serum of horses immunized against the Shiga bacillus. Recommended in dysentery and summer diarrhea where the bacillus of Shiga is an etiologic factor. Marketed in bottles containing respectively 10 and 20 Cc.

ANTIPNEUMOCOCCUS SERUM.—Farbwerke vorm. Meister, Lucius & Bruening, Hoechst a. M., Germany (Victor Koechl & Co., New York).

Antipneumococcus Serum, stated to be prepared from highly virulent original cultures derived from human pneumococcus affections. Marketed in bottles containing 10 and 20 Cc., and also in powder form in vials containing 1 Gm. each. The dry serum is intended principally for the local treatment of ulcus serpens.

ARHOVIN.—Arhovin is stated to be a solution of diphenylamine and thymolbenzoate in ethyl benzoate, the three constituents being in molecular proportions.

Arhovin is a yellowish liquid of aromatic odor and feebly cool-burning taste, on account of which it is supplied, for oral administration, in capsule form. It is almost insoluble in water, but readily soluble in alcohol, ether, chloroform and fatty oils.

Actions and Uses.—Arhovin is rapidly absorbed and excreted, being present in the urine fifteen minutes after ingestion. It has an antiseptic action on the urine and, it is claimed, it renders the mucosa of the genito-urinary tract unfavorable for germ growth. It is said to clear up cloudy urine and make it normally acid.

Arhovin is said to be useful in the treatment of urethritis, prostatitis, cystitis, and pyelitis, as an adjunct to local treatment. It is said to be useful for external application in place of silver salts.

Dosage.—By mouth, 0.25 (4 minims), in capsule, 1 or 2 capsules three to six times daily. For urethral injections: 3 to 5 per cent. solutions in olive oil or liquid petrolatum; 15 c.c. two to four times daily.

Manufactured by Dr. Arthur Horowitz, Berlin, Germany (Schering & Glatz, New York). U. S. trademark No. 58,756. Not patented.

Arhovin Capsules.—Each capsule is said to contain 0.25 Gm. (4 minims) of arhovin.

MAGNESIUM PEROXIDE.—Magnesium Peroxidatum.— Magnesium superoxide. Magnesium dioxide.—Magnesium peroxide is a mixture consisting essentially of magnesium peroxide and magnesium oxide with water of hydration, containing not less than 15 per cent. of magnesium peroxide (MgO_2).

Magnesium peroxide is a white powder. It is practically insoluble in water, but by such contact is gradually decomposed into hydrogen peroxide and magnesium hydroxide, the hydrogen peroxide being further decomposed by the alkaline magnesium hydroxide, with liberation of oxygen. It is decomposed by dilute acids with formation of a solution containing hydrogen peroxide.

If about 1 Gm. of magnesium peroxide be dissolved in a mixture of 10 Cc. dilute sulphuric acid and 90 Cc. water a solution results, 1 Cc. of which shaken with 5 Cc. ether and 1 drop of a 1/100 chromic acid solution should produce a blue color in the ether.

If about 0.2 Gm. magnesium peroxide be boiled with 10 Cc. water, then cooled and filtered, the filtrate should be but faintly alkaline; and 5 Cc. of this filtrate on evaporation should leave only a trace of residue.

If about 1 Gm. magnesium peroxide be dissolved in 25 Cc. dilute nitric acid and 2 Cc. tenth-normal silver nitrate added to the solution and the resulting precipitate filtered off, the further addition of a few drops of silver nitrate solution to the filtrate should not produce a turbidity.

If about 1 Gm. magnesium peroxide be exposed to the full heat of a Bunsen flame for five minutes, then dissolved in 25 Cc. dilute hydrochloric acid and the solution made up to 100 Cc., a solution will result which will conform to the following tests:

10 Cc. of the solution saturated with hydrogen sulphid should yield no precipitate, nor become colored.

10 Cc. of the solution, to which 10 Cc. ammonium chlorid solution and ammonium hydroxid in excess have been added, should yield not more than a turbidity on the addition of ammonium carbonate.

10 Cc. of the solution should not immediately give a blue color on the addition of a drop of potassium ferrocyanid solution.

If 0.2 to 0.3 Gm. magnesium peroxide, weighed into a flask, be dissolved with 20 Cc. dilute sulphuric acid, the solution diluted with 50 Cc. water, the titration of this solution with tenth-normal potassium permanganate should indicate the presence of not less than 15 per cent. magnesium peroxide, MgO_2.

Actions and Uses.—Magnesium peroxide, due to its property of yielding oxygen is said to be of value as a gastric and intestinal antiseptic. It has been recommended in chlorosis, anemia, gout and rheumatism. It is also used as a constituent of dentifrices.

Dosage.—0.25 to 0.50 gm. (4 to 7 grains) two or three times daily.

Therapeutics

DRUGS ACTING ON THE CIRCULATION

STROPHANTHUS

Description.—*Strophanthus hispidus* (genitive strophanthi, Latin masculine noun, second declension) derives its name from the Greek στροφή a turn or a twist, and ἄνθος a flower, from the twisted, thread-like segments of the corolla, and *hispidus,* Latin meaning hairy, the seeds being covered with hairs. Strophanthus is a woody climber in the forests of tropical Asia and Africa. The United States Pharmacopeia recognizes as official the seeds of *Strophanthus hispidus* De Candolle.

The natives of Africa, especially along the Zanzibar coast, express from the seeds of this plant an oily juice which they smear on their arrow-heads. This poison is variously known as the Kombé poison, or the Inée or Onaye poison, or the Wanika poison, or the Pahouins poison, depending on the region of Africa in which this poison is used.

The seeds of strophanthus contain from 1 to 4 per cent. of a glucosid extracted with alcohol and hydrochloric acid, and an acid called by Culbreth kombic acid. This glucosid is probably similar in action to the ouabain, the active principle obtained from the seeds of *Strophanthus glaber*.

The Kombé arrow-poison, named strophanthus by Sir John Kirk, was first examined in 1862 by Professor Sharpey, but the action of strophanthus was first presented to the profession by Professor T. R. Fraser, of Edinburgh, in 1870. Professor Fraser obtained from the seeds a bitter, white, imperfectly crystallin principle, *strophanthin*, which is a glucosid changed by sulphuric acid into glucose and crystallin strophanthidin. Strophanthin is more poisonous than strychnin, atropin and even hydrocyanic acid.

Strophanthus has not been used so much as its physiologic action authorizes because the best liquid preparation of it, the tincture, was supposed to vary so greatly in strength and efficiency as to render the use of the drug in this form uncertain. The U. S. P. tincture, if made by a reliable firm, has been shown by repeated examinations to be of good and efficient strength, although like all tinctures of crude drugs, the strength varies, though not so widely as does the tincture of digitalis. The mistake is often made of adding tincture of strophanthus to some watery solution. Watery menstrua have been shown to diminish the efficiency and to injure the activity of tincture of strophanthus. Therefore, the tincture of strophanthus should be ordered alone or, if deemed advisable, in combination with some other tincture.

Local Action.—Strophanthus has no action on the unbroken skin. If the volatile oil contained in the seeds is entirely removed before the preparations are made, strophanthus has but slight irritant action on the mucous membranes, but large doses of most preparations may cause nausea and vomiting and perhaps diarrhea. In small doses the slight irritation which is caused will act as a stomachic or bitter tonic.

Systemic Action.—Although strophanthus has been estimated as sixty times as toxic as digitalis, leaving out for a moment this toxic power, it may be epigrammatically described from the therapeutic standpoint as acting "just like digitalis, only less so." In other words, it is less slow of absorption and therefore more rapid to act; it is less likely to cause vomiting; it slows the heart less, increases its contractions less, and causes less contraction of the blood-vessels, especially those of the splanchnic area and the coronaries; and it is less likely to cause cumulative action. The active constituents of this drug are rapidly absorbed, and also rapidly excreted, hence if the doses are not too frequently repeated, as just stated, there is no danger of cumulative effect. Its action may be noticed in half an hour after it is administered and the effect will last for several hours.

The primary action of this drug, like digitalis, is on the *circulatory system*. The heart muscle is as strongly stimulated as by digitalis. The heart is slowed and the diastole prolonged probably by the action on the peripheral endings of the pneumogastric nerves in the heart.

It has been generally believed that strophanthus does not cause much arterial contraction and therefore does not much raise the systemic blood-pressure. Pharmacologic experiments, however, seem to show that it does raise the blood-pressure by causing arterial contraction. Clinically, however, in a dose sufficient to act on the heart it does not raise the blood-pressure as does the same efficient doses of digitalis. Even when the blood-pressure is raised by it, it has seemed not to raise the pulmonary pressure. Hence strophanthus can be used in arteriosclerosis when digitalis is contra-indicated.

In ordinary dosage, strophanthus has but slight, if any, effect on the *nervous system*, but if any effect is produced on the brain and medulla it seems to be that of a slight sedative. Whether such quieting effect is due to an improved circulation or to a possible sedative effect on the thyroid gland, which if excited is the cause of cerebral excitation and nervousness, cannot be decided. From this sedative effect on the higher nerve centers, which under certain excited conditions is marked, nervous muscular irritability is diminished and strophanthus thus becomes a mild antipyretic.

Locally on the eye strophanthus in doses of 1/1000 grain will produce anesthesia of the conjunctiva, contraction of the pupil, and increased intra-ocular tension, but it later causes severe irritation.

In therapeutic doses, strophanthus has no action on the *muscular system*, but in toxic doses is a direct paralyzant of the voluntary muscles acting either on the endings of the motor nerves, or on the muscle itself.

The *glands* of the body are not affected except as by the general improved circulation, except that profuse perspiration may be diminished, and there is strong clinical proof that in hypersecretion of the thyroid as occurs in Graves' disease the secretion of this gland is diminished.

It is a moot question as to whether this drug has *diuretic* properties other than that caused by the improved circulation, but it does cause diuresis in some cases in which digitalis has seemed to fail. It does not cause contraction of the renal blood-vessels, but very probably is slightly stimulant to the kidney secreting cells. This drug is rapidly eliminated and there is no danger of cumulative action if the dose is not too rapidly repeated.

Action of a Therapeutic Dose, or the Primary Physiologic Action.—Good therapeutic action of strophanthus is shown by a slowed pulse with slightly increased arterial tension, stronger and regular action of the heart, diminished nervous irritability, and an increased amount of urine. The *toxic action* of strophanthus is shown by disturbed circulation, as occurs with a toxic dose of digitalis, and great muscular weakness.

The treatment of strophanthus poisoning is similar to that of digitalis poisoning.

Therapy.—The indications for preferring and using strophanthus instead of digitalis are:

First, when there is an indication for a cardiac tonic and digitalis produces nausea, vomiting, and too great increase of blood-pressure.

Second, when a cardiac tonic is indicated and the blood-pressure is already high.

Third, when a rapidly acting cardiac tonic is indicated.

Fourth, when there is more nervous irritability and weakening of the heart than actual muscular debility or incompetency.

Fifth, children are very susceptible to the action of digitalis, and hence strophanthus is often a better drug to use when a cardiac tonic is indicated.

Strophanthus can be used for any condition in which digitalis is indicated. It often acts well as a diuretic and in dropsical conditions not due entirely to cardiac incompetency strophanthus acts better than digitalis.

It is of special advantage in chronic nephritis when digitalis is contra-indicated. In the rapid heart and cerebral excitation of Graves' thyroid disease strophanthus is often of marked benefit.

Contra-Indications.—In the conditions in which digitalis is contra-indicated strophanthus should be used with care, but not being a vasoconstrictor in ordinary doses, and not contracting the blood-vessels of the kidneys, and not having cumulative action gives this drug a wider range of use within the realms of conservative therapy, than has the more strongly acting drug, digitalis.

Official Preparations.—Strophanthus is not used as such. *Tinctura Strophanthi:* This is a 10 per cent. tincture; dose 10 drops.

STROPHANTHIN

So much has recently been written of the therapeutic value of strophanthin when injected hypodermatically or intravenously, and, *per contra*, the use of tincture of strophanthus by the mouth has been reported so many times as unsatisfactory, that this active principle is worthy of a brief separate discussion.

The *Strophanthinum* of the Pharmacopeia is a glucosid or mixture of glucosids. It is a white or faintly yellowish crystallin powder, very bitter, and very soluble in water and dilute alcohol. A purer strophanthin may be obtained, but perhaps its activity may not be greater than the mixture of glucosids termed strophanthin of the Pharmacopeia. Ouabain and crystallized strophanthin are identical products and have the same toxic effect, and this substance is perhaps twice as active as is the common strophanthin of the Pharmacopeia. Crystallized strophanthin is a very active poison, claimed to be sixty times as toxic as digitoxin.

By the mouth strophanthin may produce serious poisoning. Tincture of strophanthus probably so soon causes nausea and vomiting that it would be difficult to produce serious poisoning with it; this is, perhaps, not true of strophanthin. On the other hand, its therapeutic effect has been found to be much less when given by the stomach than when given hypodermatically.

The best strophanthin on the market is obtained by a process of extraction, devised by Thoms, from strophanthus gratus, and has a definite melting point and solubility, as determined by Hatcher and Bailey.

Harold C. Bailey (*Journal of Pharmacology and Experimental Therapeutics*, October, 1909) advises that the daily dose of the crystalline strophanthin should not exceed 0.0005 gram,. (1/120 of a grain) and that this dose should not be repeated in 24 hours. If crystalline strophanthin is given intramuscularly, it should be dissolved in a 1 to 4,000 saline solution, or for intravenous use in a 1 to 6,000 or 8,000.

The hypodermatic dose is very much less than that by the mouth, and in fact tablets for hypodermic administration are offered, each containing 1/500 of a grain, the dose ranging from 1/500 to 1/100 of a grain. Hatcher (THE JOURNAL, March 26, 1910) has several times declared that crystalline strophanthin is twice as toxic as the amorphous strophanthin of the Pharmacopeia.

Strophanthin seems to be especially valuable as a cardiac stimulant when there is weakened heart muscle in chronic myocarditis or in chronic valvular disease, especially if there is coincident nephritis. Hypodermatically, however, strophanthin should probably be reserved for emergencies, although a number of French clinicians give 0.001 gram (1/60 of a grain) of strophanthin intramuscularly or even intravenously, once in 24 hours, for several days, if necessary. On the other hand, once or twice, at 24-hour intervals, is generally sufficient. Administered in this manner, this drug seems quickly to increase the strength of the cardiac contractions, to slow the pulse, and often in cardiac disturbances causes diuresis. However, if the kidneys are damaged, strophanthin may not act as a diuretic unless some other drug is added to the treatment, such as caffein. Although strophanthin is recommended to be used intravenously, it would seem hardly justifiable, except in emergencies. On the other hand, when the heart is failing from cardiac disease or dilatation, and digitalis is contra-indicated or useless, the patient should not be allowed to die without a trial of strophanthin.

Strophanthin has proved successful in relieving almost hopeless pulmonary edema from failure of the right side of the heart.

Symptomatology of Anterior Poliomyelitis

The Board of Health of New York City, in line with many other health boards, has made infantile paralysis a reportable disease. A special form of card has been prepared for recording the cases, and the inspectors have been instructed to pay special attention to securing exact information as to periods of incubation and infectivity. Negative findings may be as important as positive ones. A bulletin has been issued concerning the disease, which gives a clear statement of the symptoms and signs in the light of the late investigations, and also emphasizes the value of the findings in the cerebrospinal fluid. In view of the probability that in the coming warm season many cases of infantile paralysis will occur, this portion of the bulletin may be worth republishing. It says:

"Epidemics of acute poliomyelitis have been noted with increasing frequency in this and other countries. Its infectious nature has long been suspected, and in 1909 was rendered almost certain by the production of the disease in monkeys by inoculation of the emulsified spinal cord of a child that had died of the disease. Studies made at the Rockefeller Institute have made this proof still more conclusive. The virus is contained not only in the spinal cord, but also in other parts of the body, most particularly the nasopharyngeal mucous membrane. This is significant in its relation to isolation and prophylaxis, and suggests a likely source of dissemination.

"Abortive forms without paralysis have been noted and are recognized with difficulty, except during an epidemic. Examination of the cerebrospinal fluid obtained by lumbar puncture is of great assistance in confirming the diagnosis. the distinctive features of the fluid are: clear fluid, absence of bacteria, increased cellular elements (chiefly lymphocytes), moderately increased tension, and definite increase of protein content as shown by Noguchi's test. In a recent case a positive diagnosis was made by lumbar puncture, twenty-four hours before any sign of paralysis appeared. The meningeal and cerebral types of the disease may thus be differentiated from epidemic cerebrospinal meningitis.

"The disease is characterized by a sudden onset with fever, followed, generally, within from twelve hours to three or four days, by general or localized paralysis, almost always of a flaccid type, with reaction of degeneration and early atrophy in the muscles permanently affected. Paralysis is most common in one or both legs, but may occur in any part of the body. Vomiting and convulsions occur frequently at the onset but are not constant symptoms. More significant are restlessness and insomnia which occur early in most cases. Pain and tenderness, usually referred to the joints and muscles, were common in the 1907 epidemic in New York City.

"The period of incubation varies widely; between two and thirty days. The average appears to be from seven to ten days. The so-called abortive cases may act as carriers, and there are also many authentic cases in which the disease was in all probability carried by a third person.

"The duration of the period of infectivity is unknown, which leaves the question of isolation and quarantine unsettled."

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THE EFFECT OF ROENTGEN RAYS ON THE THYMUS

That Roentgen rays produce distinct changes in various tissues of the animal body is well known, but concerning the exact mechanism by which these changes are caused we know practically nothing. Marked changes may be produced in the blood and blood-forming organs by these rays under proper conditions and, as first shown by Heineke, the lymphocytes are especially sensitive to their action, disintegration taking place very rapidly. It is on this account that the rays are used in the treatment of leukemia. In animals it has been found that the lymphoid tissues themselves are markedly affected. Recently the effect of roentgenization on the thymus has been studied experimentally by Rudberg,[1] and as the resulting cellular changes have been followed closely (in rabbits) a brief account of them is given.

Under the influence of the rays, the lymphocytes as well as the cells of the reticulum of the thymus rapidly undergo a characteristic destructive process which sets in with disintegration of the lymphocytes within three and one-half hours after beginning the exposure. The products of disintegration, as a rule, do not leave the thymus, but are taken up by the cells of the reticulum and subjected to intracellular digestion, and in from twelve to forty-eight hours all lymphocytes and lymphocytic remnants may have disappeared. The reticulum cells now become closely approximated and the tissues assume an epithelial aspect. Degeneration of the reticulum cells takes place somewhat later, often after all lymphocytes have been destroyed, and continues after the regeneration of lymphocytes has begun. The reticulum cells are changed into large transparent forms with pronounced foamy structure. Large parts of the thymus may become sequestrated and, through softening of the dead tissue, cystic cavities may arise. If the destruction has been moderate only, the regeneration which follows is accomplished by the reticulum cells as well as the lymphocytes still present. But if prolonged exposures are made, then all the lymphocytes may be destroyed and now the new lymphocytes appear to come by importation through the lymph-vessels, passing into the perivascular connective tissue to the center of the lobules and spreading themselves out towards the periphery. Later, these cells multiply and after a time the division of the parenchyma into cortex and medulla becomes apparent again.

Marked changes in the thymus occur also when it is protected against direct action of the rays by means of lead plates. In this case there is not only some disintegration of lymphocytes, but also an emigration. The latter takes place in the usual method characteristic of accidental thymic involution and inanition, the lymphocytes wandering into the medulla and entering the lymph-vessels there. The emigration begins early and is most marked from the second to the fifth day; it may be most marked before the animal begins to show signs of diminished vitality and loss of body weight and, consequently, has no connection with the thymic involution which may result from disturbance of the general condition by roentgenization. It seems that the cells emigrate in order to replace cells that have been destroyed elsewhere in the body and in the blood, and in consequence the number of lymphocytes in the blood increases. The disintegration of the thymic lymphocytes in animals whose thymus is protected takes place during the first day after irradiation and is similar to that which follows direct irradiation but is less extensive. The cause is ascribed in part to a secondary irradiation from the neighboring parts of the body, which have been exposed to the rays, and no doubt in some part to the action of lymphocytolytic substances which appear in the blood and tissue fluids. This secondary irradiation is easily shown by placing a photographic film under the lead plate. That lymphocytolytic substances are produced was shown by Rudberg by injection of the blood and serum of irradiated animals into the peritoneal cavity of healthy animals, in which there resulted a distinct disintegration of lymphocytes in the follicles of the appendix and mesenteric lymph-nodes.

At present we must be satisfied with knowing that Roentgen rays cause the remarkable changes that have been described; how they cause them is a mystery.

1. Om Thymusinvolutionen Efter Röntgenbestrålning Jämte Några Iakttagelser Ofver Leukolysen I Ofright Hos Röntgenbestrålde Djur. Af Hans Rudberg. Upsala, 1909.

THE CARD SYSTEM OF RATING DAIRIES

In a previous issue,[1] the question of dairy inspection was discussed in a general way. It is evident that in order to obtain from dairy inspection results of value in the way of improvement of the milk-supply, a uniform system of inspection must be practiced and careful records kept. This would permit a comparison of the results accomplished and would encourage the improvement of dairies by the dairymen. The most reliable index of the quality of the milk-supply is the bacterial content. Improvement in dairy equipment and methods should be reflected in the bacterial findings.

1. THE JOURNAL A. M. A., Jan. 14, 1911, p. 124

In order to secure an efficient system of records and to facilitate the comparison of results a number of score-cards have been devised. The one most commonly used has been worked out by the Department of Agriculture and covers two features—equipment and methods. Under equipment are considered the health of cows, provisions for their comfort, food and its quality, the construction of stables, bottling rooms, sterilizers and other utensils. Forty points are allowed in the rating for perfect equipment. Under methods are comprised cleanliness of the cows, of the stables, ventilation of the buildings, condition of the utensils, of the milkers, of the milk room, and the methods of handling the milk and its prompt and efficient cooling. For perfect methods, 60 points are allowed.

This card has also on its reverse side a place for recording the number of cows, the number of gallons of milk produced daily and the market to which the milk is sent, and a place for recording the quantity of milk procured from other dairies.

Another system of inspection, used in Michigan, comprises five features, allowing 100 points for each. They cover the health of the herd and its protection, cleanliness, construction and care of utensils, health of employees and manner of milking, and the subsequent handling of the milk. A perfect score would be 500 points. In addition, the general sanitary conditions are noted as good, medium, poor, etc. There is also a provision for recording the quality of milk under the heads of percentage of butter fat, lactometer tests, total solids, and solids not fats.

The card devised by the government has aided much in forming an idea as to correct dairy conditions, but it is far from perfect. The chief criticism is that the details under each of the heads mentioned above are not sufficiently worked out. For instance, the matter of tuberculin tests of the cows, the manner of bedding, the construction of the stable with reference to light, cubic air space per cow, screens in windows, etc., might be given in greater detail, together with more minute details with reference to the condition and manner of using, cleansing and keeping the various utensils. Similarly the cleanliness of the cows, the methods of handling the manure and food and the condition of the milkers are not sufficiently particularized.

It will be seen that much of the value of such records will depend on the knowledge and judgment of the inspector and the thoroughness with which he does his work. For this reason it is highly important that men thoroughly trained should be employed for this purpose. An excellent plan would be to demand from the applicants for such positions that they have certificates from a dairy school in good standing, so that they may have a proper appreciation of the points of clean milk production that would tend most to a low bacterial count. For there must be a definite relation between the score of the dairy and the number of bacteria present in the milk. The higher the score the smaller the number of bacteria, and *vice versa*.

The foregoing has reference, of course, only to the production of milk in the dairies. The control of conditions in milk depots and stores and throughout the distributing system must be carried on in a similar manner.

The advantages to be obtained by a thorough system of inspection and record-keeping would be, first, the accumulation of reliable data concerning the essentials of clean milk production and handling; second, the imparting of instruction to all those engaged in milk production and the milk traffic; third, the establishment of a statistical basis for appropriate legislation. The card-rating system, if developed in sufficient detail, and accompanied by efficient inspection, would be an effective method of securing these results.

THE FUNCTION OF THE CORPUS LUTEUM

Whenever a pathologist presents a summary of the present status of the problem of cancer etiology, he is more than likely to conclude with a statement to the effect that the solution is up to the biologist. This conclusion rests on the conviction that the growth of cancer cells depends on the same fundamental factors as the growth of normal cells, which have in some way become perverted. The pathologist reasons that when the biologist has shown why normal cells proliferate, and especially why they stop proliferating when certain well-defined limits of growth have been reached, it will be a simple matter to find why sometimes the growth processes are of excessive energy or why they fail to stop at the proper time, and by their lawlessness constitute malignant growths. Cellular biology, therefore, seems to hold the key to the genesis of tumors, and cooperation between its disciples and the pathologists seems to offer the best hope of success. As an illustration of this principle we may call attention to the important studies on the growth of tumor cells under the microscope which have been reported in recent numbers[1] of THE JOURNAL, and which are the outcome of the observations on cell growth made by a pure biologist, Professor Harrison of Yale.

Equally interesting advances along the line of cell growth, which have a presumptive bearing on tumor genesis, have been recently made by a reverse process, the incursion of a pathologist into the fields of biology. Leo Loeb, through whose studies America has the credit of the first extended series of successful tumor transplan-

1. Among these may be mentioned: Carrel, A., and Burrows, M. T.: Cultivation of Adult Tissues and Organs Outside of the Body, THE JOURNAL A. M. A., Oct. 15, 1910, p. 1378; Cultivation of Sarcoma Outside of the Body, ibid, Oct. 29, 1910, p. 1554; Nov. 12, 1910, p. 1732. Weil, R.: Biochemical Investigation of Malignant Tumors and Its Diagnostic Applications, ibid, Oct. 29, 1910, p. 1532. See also report of meeting of American Association for Cancer Research, THE JOURNAL A. M. A., July 23, 1910, pp. 340-1; Culture of Cancer Cells *in Vitro*, a letter from G. Volpino, ibid, Jan. 14, 1911, p. 139. Lambert, R. A., and Hanes, F. M.: Growth *in Vitro* of Transplantable Sarcomas of Rats and Mice, ibid, Jan. 7, 1911, and Feb. 25, 1911, p. 587.

tations, has during the past few years published a number of observations on the function of the corpus luteum which have much significance for both biology and pathology. It may be recalled that the corpus luteum has a histologic structure strikingly similar to that of the adrenal cortex, a fact which makes it probable, if not certain, that this transitory cell mass must possess some function in the way of internal secretion. In consequence of this fact and of sundry experiments, various hypotheses have been evolved, but without the final establishment of the function of the corpus luteum. Through an extensive series of experiments Loeb[2] has now positively determined that this organ, for such it may properly be called, does produce an internal secretion or secretions which exercise an important influence on the sexual cycle. One function of this secretion seems to be that of prolonging the length of time between two successive ovulations, so that during pregnancy the useless discharge of mature ova from the ovary is prevented, whereas if impregnation does not occur the early atrophy of the corpus luteum of menstruation or ovulation permits of more rapid maturation of ova, thus hastening the time of the next possible impregnation.

Another function, and one that seems especially related to cell growth and tumor formation, is that of sensitizing the uterine mucosa so that it reacts to any sort of mechanical stimulus by forming a maternal placenta. A few days after ovulation the uterine mucosa of the guinea-pig can be made to take on a most exuberant growth, leading to the formation of much placental tissue, by merely introducing into the uterine cavity an inert foreign body, such as paraffin or a bit of glass rod, or by injuring the mucous membrane by incising it. Nervous influences having been excluded, and the essential importance of the corpus luteum in producing this condition having been established, the conclusion is reached that the corpus luteum secretes a hormone with the function of sensitizing the cells of the uterine mucosa so that they react to indifferent mechanical stimuli by rapid proliferation. Normally, this stimulus is furnished by the impregnated ovum, but as any foreign body will have the same effect as the ovum in this respect, the purely mechanical nature of the stimulus is evident.

The close relation of these observations to tumor pathology is at once apparent when we recall the numerous instances in which some mechanical stimulus, whether a blow or chronic irritation, has led to the production of a malignant tumor. Furthermore, experimental studies on tumors in animals have indicated that the power of the malignant tissues to proliferate is influenced by chemical substances of unknown nature, which in some cases seem to stimulate and in others appear to retard cancer growth. The strange behavior of those remarkable placental tumors, the deciduomata, also recurs to one in contemplating the great growths of placental tissue which Loeb has caused to develop in the uterine mucosa as a reaction to mechanical stimuli. To attempt any speculation as to the exact meaning of these experiments for human pathology at this time would, however, be premature.

It may be of interest to the clinician to learn that it is not possible to produce the effects characteristic of the corpus luteum secretion by injecting extracts of the fresh corpora lutea of guinea-pigs or of swine into castrated guinea-pigs.[3] This fact is of importance in view of the proposed and attempted therapeutic use of the same material in practice, although it must be granted that negative experimental results do not absolutely exclude positive clinical results, however improbable the latter may thus be rendered. There seem to be few internal secretions whose normal delivery to the tissues in minute quantities as needed can be successfully replaced by the therapeutic introduction of larger quantities at longer intervals.

2. Loeb, L.: Experimental Production of the Maternal Placenta and Function of the Corpus Luteum, THE JOURNAL A. M. A., Oct. 30, 1909, p. 1471; Med. Rec., June 25, 1910; abstr. in THE JOURNAL, July 9, 1910, p. 166. See also Fraenkel, L.: Arch. f. Gynäk., 1910, xci, No. 3; abstr. in THE JOURNAL A. M. A., Jan. 7, 1911, p. 79.

3. Morley, W. H.: Cases in Which the Extract of Corpus Luteum Has Been Used, Jour. Mich. State Med. Soc., November, 1909; abstr. in THE JOURNAL A. M. A., Dec. 11, 1909, p. 2035. Maits, C. B.: Therapeutic Value of Extract of Human Corpus Luteum, Univ. Penn. Med. Bull., July-August, 1910; abstr. in THE JOURNAL, Sept. 10, 1910, p. 966.

Current Comment

EFFORT FOR HIGHER PRELIMINARY STANDARDS

An energetic effort is being made in at least two states to secure legislation providing for a higher standard of education preliminary to the study of medicine. At a meeting of the Ohio State Medical Teachers' Association held in December, a resolution was adopted requesting the Ohio State Medical Board to join the association in petitioning the legislature to enact a law fixing the minimum educational requirement preliminary to the study of medicine at two years of collegiate work, including chemistry, physics, biology and a modern language. Legislation providing for a similar standard is also being asked for in Utah. That standard has been adopted in Minnesota, North Dakota, Colorado, Iowa and Indiana, and a requirement of one year's work in physics, chemistry and biology in addition to a standard four-year high-school education has been adopted in South Dakota, Kansas and Connecticut. It is clear that such requirements on the part of state boards are not unreasonable; twenty-eight colleges are now enforcing the two-year requirement and thirteen others are requiring one year of collegiate work or its equivalent for admission. Of the latter group several have expressed their intention eventually of requiring two years of collegiate work. Should the state boards more generally adopt the increased requirement, it might cause a further reduction in the number of medical colleges, but with our present oversupply that reduction would not be serious. Of much more importance, however, are the

facts that this country would have a larger number of medical colleges adhering to reasonably high standards for admission; that a larger percentage of medical students, because of the higher entrance requirements, would be enabled better to grasp the fundamentals of a modern medical training, and that the public would be benefited by having a larger number of educated and well-trained physicians.

A JUDICIAL VIEW OF DRUG ADULTERATION

A New York firm that shipped adulterated drugs into another state was prosecuted under the federal Food and Drugs Act. As the government's case against the firm was clear and unmistakable, a plea of guilty was entered. Judge Holt, of the U. S. Circuit Court for the Southern District of New York, before whom the case was tried, suspended sentence over a term of two years. In so doing Judge Holt criticized the methods employed by the government officials in securing the evidence in the case. It appears that the Department of Agriculture had a San Francisco house order from the New York firm a number of different drugs. They were analyzed and the prosecution was based on the chemists' findings. Judge Holt in his criticism said:

"I do not propose to aid in this sort of perversion of the law and abuse of its processes. This method of getting evidence in cases of this kind is resorted to by inspectors to show their efficiency through the medium of sham orders under cover of interstate commerce. These things were bought for the purpose of getting up a criminal prosecution instead of legitimate business purposes. This is following out the idea of modern federal legislation and taking the proper relief power from the states."

To the man in the street the action of the government employees in securing evidence against the shippers of adulterated drugs seems entirely praiseworthy. From the standpoint of public health there is no doubt that the adulteration of drugs and foods should be stopped, and at present the federal authorities seem to be about the only ones—with a few notable exceptions—that are competent to check it. Judge Holt apparently thinks that, because the adulterated drugs were not bought for "business purposes" the government authorities were overzealous in proving such adulteration. Evidently, the judge would not approve of the various city weight and measure inspectors because, in pursuit of their duties, they purchase food and other products not for "business purposes," but to determine whether the public is being "short-weighted." Anyone conversant with human nature knows that the strongest incentive to commercial honesty is a well-founded belief that dishonesty is constantly being exposed by the officials whose duty it is to safeguard the public's health and purse. Judge Holt also echoes that oft-heard plaint that, in prosecuting "patent-medicine" fakers, drug adulterators and food sophisticators, the federal government is encroaching on the powers of the state! For years before the Food and Drugs Act went into effect the various states had laws which were supposed to protect the public against adulteration in drugs and foods, but the enforcement of these state laws was—and in many cases still is—the veriest of farces. Zealousness on the part of officials who were supposed to enforce the state pure food and drugs laws usually resulted disastrously to such officers, with the result that many state food and drug inspectors were satisfied to become mere salaried figure-heads. If the same opposition is going to be brought against federal officers who have the public health, rather than the "business interests" at heart, we may look for the government officials to develop the same apathy that has paralyzed many of the state food and drugs acts and made state enforcements of law a byword and a reproach. If there is anything the "business interests" like better than a considerate congressman, it is a solicitous judge.

ATHLETICS IN THE NAVAL ACADEMY

In his recent report, the Surgeon-General of the Navy calls attention to a point which may be of some importance: that is, the danger of too strenuous athletic training for naval officers. It has long been observed that highly developed muscles do not always accompany a high resistance to infection, but often weaken resistance by producing an imbalance between the different organic functions. It has frequently been noticed, for example, that many athletes die of tuberculosis. The frequency, perhaps, is apparent rather than real, since an athlete's death from tuberculosis is sure to be remarked because it seems unexpected. It is almost certain, nevertheless, that athletes do not possess any exemption from that disease because of their splendid physical development, and it is even probable that this very fact may increase their liability. Naval officers in active service are confined within rather narrow quarters and have little opportunity to keep up the physical activities that an overtrained and overdeveloped physical organization may need. An excessive muscular development that is not demanded by the occupational activities of the individual becomes a parasitic element in the organism; that is to say, instead of contributing to the individual's total efficiency, the activities required by such a muscular development make drafts on the individual's time and energies and actually decrease his efficiency. Under such circumstances it becomes a positive detriment instead of a benefit.

A CORPORATION WITH A CONSCIENCE

In his last annual message President Taft recommended legislation against the use of white phosphorus in the manufacture of friction matches as causing one of the most serious of occupational diseases. A bill was introduced into Congress acting on this recommendation, but it appears that the use of any substitute had been covered by a patent held by the Diamond Match Company. This fact imperiled the passage of the bill, even if the enforcement of the patent right was not absolutely insisted on by the holder, as Congress thought it could not legislate away a right legally bestowed, even if it was only nominally held. To meet this objection the company has voluntarily surrendered its rights and dedicated the patent to the use of the people of the United States. As the *Outlook* says, this action, while it may be in some measure dictated by enlightened self-interest, deserves cordial commendation.

Medical News

ALABAMA

New Sanatorium.—Dr. Francis G. Dubose will remodel the old parsonage of the First Baptist Church, Selma, as a sanatorium to replace the Vaughan Memorial Hospital which was destroyed by fire, January 5. The reconstruction of the building is estimated to cost $12,000.

Personal.—Drs. R. F. Lovelady and William W. Long, Birmingham, have been elected directors of the American Health and Accident Insurance Company.——Dr. William M. Jordan, Birmingham, who has been under treatment in Johns Hopkins Hospital, Baltimore, has returned home.——Dr. Carney G. Laslie has been elected health officer of Montgomery, vice Dr. Rufus L. Milligan, resigned.——Dr. William Y. White has been appointed health officer of Anniston, vice Dr. Thomas J. Brothers.——Dr. Thomas G. Howard, Selma, has been elected health officer of Dallas County.

ARKANSAS

Personal.—Drs. Early E. Scott, Magazine; James J. Smith, Paris, and William F. Paskerville, Booneville, have been appointed members of the board of health of Logan County.

State Society Meeting.—The thirty-fifth annual session of the Arkansas Medical Society will be held at Fort Smith, May 2-5. The society will be guests of the Sebastian County Medical Society.

Advises Removal of State Hospital.—The committee appointed some time ago by the Board of Trustees of the State Charitable Institutions to investigate the feasibility of the removal of the State Hospital for Nervous Diseases, reported favorably on the proposition, and the report has been approved by the board. It was the unanimous sentiment of the board that the hospital should not be removed from Little Rock, and a committee was appointed to seek an available site for the institution.

CALIFORNIA

Tuberculosis Society to Incorporate.—At the annual meeting of the San Francisco Association for the Study and Prevention of Tuberculosis, held January 31, the election of officers and directors was deferred until February 23, when it was voted to hold an adjourned meeting, that time might be given to discussion of articles of incorporation, etc.

Personal.—Dr. Thomas A. Stoddard, health officer, and Drs. Samuel B. P. Knox and David A. Conrad, members of the board of health of Santa Barbara, have resigned.——Dr. Emma K. Willits, San Francisco, was seriously injured, February 3, by a collision between her automobile and another machine. ——Dr. William H. Stokes has been appointed a member of the board of health of Whittier.——Dr. Charles L. King, Pasadena, who was injured in an automobile accident recently, is reported to be convalescent.——Rea N. Smith, Los Angeles, who was sued for malpractice, won the verdict, February 7.

GEORGIA

New City Hospital Started.—At a mass meeting, held in Augusta in the interest of the medical college and a greater city hospital, more than $14,500 was subscribed, making the total amount pledged now $25,200.

Physician Seeks Runaway Son.—Dr. Andrew J. Mann, Alvaton, fearing that his son, William Worcester Mann, has run away, will greatly appreciate any information that may lead to his return. Dr. Mann may be reached at Alvaton by Bell telephone, collect, and at Haralson by telegraph, collect. The description is as follows: age, 16½ years; height, 5½ feet; weight, 150 pounds; broad shoulders and hips; brunette complexion; dark-brown, sharp eyes; dark-brown, curly hair; low bass voice; fine set of even teeth; hat, No. 7; shoes, No. 8; French twilled worsted, dark-blue suit; patent leather slippers; scar across toes of right foot.

Hookworm Conference.—The Rockefeller Commission held a conference in Atlanta, February 14-16, at which the field agents of the commission organized for the destruction of the hookworm, and planned a campaign to be waged against the pest. Investigations in Georgia disclose the fact that in 138 out of 145 counties in the state, hookworm has been found, while in the remaining 7 counties, investigation has not been carried far enough to make a full report. Reports were made to the conference on the prevalence of hookworm in the northern states as well as in the south. A uniform system of making reports and records was adopted.

ILLINOIS

Small-Pox in State Hospital.—Three patients of the Elgin State Hospital are confined in the hospital infirmary suffering from what is said to be a mild form of small-pox.

Local Medical Society Elects.—The Alton Medical Society has elected Dr. J. A. Cook, president; Dr. J. Bernard Hastings, secretary, and Dr. Waldo Fisher, treasurer.

Fined for Distributing Nostrum.—B. J. Crowe is said to have been fined $5 and costs, amounting in all to $9.25, in Freeport, February 14, for violating the section of the city ordinance which prohibits the promiscuous distributing of "patent medicines."

The Fight Against Tuberculosis.—Nearly $13,000 will be available for the antituberculosis work in Illinois during the present year as the result of the Red Cross Christmas Seal campaign. The total number of seals sold in Illinois was 1,652,869.

Popular Medical Lectures.—The physicians of Alton, with the indorsement of the Alton and Madison County Medical societies, have undertaken a series of lectures on medical subjects to be given every two weeks for school children and their parents. The following will be the program of the lectures:

February 19.—"Infectious Diseases: Invasion, Attack, How Controlled." Dr. James M. Pfeiffenberger.
March 3.—"Tuberculosis; Prevention and Care of Disease.' Dr. J. Bernard Hastings.
March 17.—"Diseases of Eye." Dr. Fred W. Jones.
March 31.—"Diseases of Nose and Throat." Dr. George E. Wilkinson.
April 7.—"Fresh Air and Exercise." Dr. N. Garland Taphorn.
April 21.—"Sick Room Management." Dr. Homer W. Davis.
May 5.—"Mental Defects." Dr. William H. C. Smith, Godfrey.
May 19.—"Care and Feeding of Babies." Dr. Frederick C. Joesting.
May 29.—"Care of Teeth." R. E. Cockerell, D.D.S.

Chicago

Dispensary Opened.—The Iroquois Memorial Dispensary opened for its first clinic for tuberculosis patients, February 21. The clinic was in charge of Dr. Clarence L. Wheaton.

Take Interest in Mayoralty Campaign.—More than 200 physicians have formed a Charles E. Merriam Club and elected the following officers: president, Dr. John M. Dodson; vice-presidents, Drs. Homer V. Halbert, Isaac N. Dansforth, Albert J. Ochsner and James E. Stubbs; secretary, Dr. Ludvig Hektoen, and treasurer, Dr. Winfield S. Harpole.

Tuberculosis Hospital Staff Named.—The president of the county board announced, February 14, the following attending staff for the Tuberculosis Hospital located on the county hospital grounds: chief of staff, Dr. Clarence W. Leigh, and members, Drs. Thomas A. Hogan, Clyde D. Pense, Frederick Tice, Arthur M. Corwin, Milton Mandel and George B. Dyche.

Benefited by Charity Ball.—The final report of the chairman of the committee which had in charge the Charity Ball, shows that $26,599.08 is the net sum to be distributed. Of this the Children's Memorial and Presbyterian hospitals each receive $5,500, the Alexian Brothers', Chicago Lying-In, The Passavant Memorial, and Provident hospitals, and the visiting Nurses' Association, each $2,250, and the German Hospital, $1,000.

INDIANA

Pettigrew Discharged.—Charles G. Pettigrew, Logansport, whose license was revoked by the State Board of Medical Examiners, and who was arrested on the charge of practicing medicine without a license, was discharged as he proved that he had turned over all his business to licensed practitioners.

New Cottage for Camp Colony.—As the result of the efforts of the South Bend Antituberculosis League, the local colony is to be benefited by at least two new cottages, funds for which have been appropriated by the state committee of the American National Red Cross. The following is the newly elected medical staff of the league: chairman, Dr. Edwin J. Lent; superintendent, Dr. W. H. Hillmann, and Drs. Charles E. Hansel, Roscoe L. Sensenich, Hugh M. Miller, Walter H. Baker, and Charles S. Bosenbury.

Personal.—Dr. William G. Ralston, Evansville, celebrated his ninety-second birthday anniversary, February 13.—— Dr. Homer H. Elmore, Brown Valley, was ordained as a clergyman of the Baptist Church, February 2.——Dr. Alfred Henry has been appointed chief of the Indianapolis Free Tuberculosis Clinic, vice Dr. Jewett V. Reed, resigned.——Dr. Charles L. Dreese, Goshen, is reported to be seriously ill.——Dr. Samuel E. Smith, medical superintendent of the Eastern Indiana Hospital for the Insane, East Haven, Richmond, has

been appointed chairman of the executive committee of the Twentieth Indiana State Conference of Charities and Corrections.

IOWA

Personal.—Dr. Frederick G. Ellis, of the staff of Mount Pleasant Hospital, has resigned.——Dr. and Mrs. J. W. Griffin, Manson, have returned from Germany.

Appropriation Asked for Epileptic Hospital.—The bill of the State Board of Control, asking for an appropriation of $200,000 for a state epileptic hospital has been presented in the senate by Senator Jewell.

Society Meetings.—The physicians of the southern part of Page County, met at Coin, completed the organization of the Page County Medical Protective Association, and elected Dr. Allen H. King, Coin, president; Dr. Robert W. Blanchard, vice-president; Dr. William G. Johnson, Coin, secretary, and Dr. John R. Thompson, Northboro, treasurer.——At the annual meeting of the Waterloo Medical Society, Dr. J. Q. A. Scroggy was elected president; Dr. W. M. Sterling, vice-president; Dr. Joseph R. Allen, secretary, and Dr. DeWitt C. Hunton, censor.

KANSAS

Personal.—Dr. Owen G. Hutchinson has been appointed physician of Wichita and of Sedgwick County.——Dr. Charles W. Ewing, Wellsville, announces that he is about to cease practice.

Sanatorium Recommended.—The senate in committee of the whole, February 3, recommended for passage the bill of Senator Milligan, providing for the establishment of a sanatorium for tuberculosis patients at some point in western Kansas to be selected by the State Board of Control. The bill carries an appropriation of $25,000 for the establishment of the sanatorium, and is approved by the State Board of Health.

LOUISIANA

Society Moves to Its New Home.—The Orleans Parish Medical Society has occupied the new building recently erected for it on the corner of Elk Place and Gasquet Street, at a cost of $15,000. The lower floor contains the office of the secretary, the library and reading room, and on the floor above is the assembly room with a seating capacity of 200.

Sanitation of Barber Shops.—At a meeting of the state Board of Health, January 20, an ordinance was adopted providing that owners of barber shops shall register their names and place of business not later than July 1, that they must keep hot and cold water, must sterilize their instruments after shaving each person, and prohibiting barbers from treating any person for skin disease, or from shaving any person with skin disease unless the individual furnish his own razor, brush and mug.

MARYLAND

Personal.—Dr. Harry M. Bowen, Aquasco, has been appointed a member of the Board of Commissioners of Prince George County.——Dr. Arthur L. Wright, pathologist to the Maryland Hospital for Insane, near Catonsville, has resigned to accept a position on the medical staff of the Baltimore and Ohio railroad.

Baltimore

Leprosy in Baltimore.—The diagnosis of leprosy is said to have been made in the case of a Chinaman held for observation at the Baltimore Quarantine. The patient is a carpenter on the British Steamer *Eskdale*, which arrived at Baltimore from Liverpool, via Huelva, February 2.

Interest in Health Conference.—Great interest was displayed in the public health conference last week under the auspices of the Medical and Chirurgical Faculty of Maryland. Sessions were well attended and many were crowded, the exhibits also attracting large numbers of people. Among the chief subjects discussed were dress, house, milk, training of children, care of the feeble-minded, etc. As the meetings were so successful, and the public so eager for information, it is proposed to repeat the meetings annually.

Personal.—Dr. Samuel C. Chew was reelected president, and Dr. Henry Barton Jacobs, member of the board of trustees of the Peabody Institute, at a meeting February 13.——Dr. Duncan McCalman was thrown from his automobile in a collision, February 16, sustaining injuries to the back and eye.——Dr. George W. Mahle has been compelled to abandon the practice of medicine on account of ill health.——Dr. Howard J. Maldies has been made lecturer on pathology and bacteriology in the Department of Dentistry of the University of Maryland.——Dr. John C. Hemmeter made an address at the annual meeting of the Pennsylvania Branch of the University of Maryland Alumni at their meeting in Harrisburg, February 23.——In a recent suit, Dr. George W. Dobbin has been awarded $3,800 for damages received in a collision of automobiles.

MICHIGAN

Dinner to Dr. Connor.—A dinner was given by the medical friends of Dr. Leartus Connor at the Detroit Club, February 23, in commemoration of the fortieth year of his entrance into practice. The committee in charge consisted of Drs. Justin E. Emerson, Andrew P. Biddle, Arthur D. Holmes, George E. Frothingham, and Benjamin R. Schenck.

MINNESOTA

Society Organized.—The Minnesota Academy of Ophthalmology and Oto-Laryngology was organized in Minneapolis, February 8. The following officers were elected: president, Dr. Howard McI. Morton, Minneapolis; vice-presidents, Drs. Jehiel W. Chamberlin and John F. Fulton, St. Paul, and secretary-treasurer, Dr. Elmer H. Parker, Minneapolis.

Reorganization of State Board of Examiners.—A partial reorganization of the State Board of Medical Examiners was announced by the governor February 16. The new members are as follows: Dr. Frank R. Weiser, Windom, Cottonwood County, to succeed Dr. Thomas Lowe, Pipestone; Dr. Hannah Hurd, Minneapolis, to succeed Dr. Margaret Koch; and Dr. Robert D. Matchan, Hennepin County, to succeed Dr. Frederick A. Knights, Minneapolis, the terms of all to expire January, 1914.——Anton Taylor has been appointed a member of the State Board of Osteopathic Examiners, vice G. L. Huntington.

Personal.—At the annual meeting of the Minnesota Association for the Prevention and Relief of Tuberculosis, Dr. Harry A. Tomlinson, St. Peter, was elected president; Dr. Warren L. Beebe, St. Cloud, as vice-president; and Dr. Henry L. Taylor, St. Paul, secretary.——The offices of Dr. Frank R. Weiser and Dr. Abanson, Windom, were totally destroyed by fire, February 2.——Dr. Edward M. Gans, formerly surgeon in charge of More Hospital, Eveleth, has resigned and expects to remove to Dickinson, N. D.——Dr. Pane R. Cook has been appointed assistant health commissioner of St. Paul.——Dr. Francis R. Woodard, Minneapolis, has been elected chief, and Dr. Willard B. Pineo, secretary of the staff of Asbury Hospital, Minneapolis.——Dr. Walter J. Marcley, superintendent of the State Tuberculosis Sanatorium, Walker, has been appointed secretary and executive agent of the State Tuberculosis Commission.

MISSOURI

St. Louis

Transfer of Insane Patients.—Arrangements have been made for a special train to bring to St. Louis insane patients who are charges of St. Louis, and who have been temporarily housed at the state hospitals at Fulton and Farmington.

Hospital to be Renamed.—A bill formally to change the name of Quarantine Hospital to Robert Koch Hospital was introduced before the municipal assembly, February 10, at the instance of the hospital board. The institution is now being used for the care of cases of tuberculosis.

NEW YORK

Antivaccination Bill.—Among the bills recently introduced into the legislature is one by Assemblyman Boylan providing that unvaccinated children may be admitted to the public schools on certificates of a physician that their physical condition is such that vaccination would jeopardize their health, or on written declaration from their parent or guardians stating that they are conscientiously opposed to vaccination.

Opens Crusade Against Insanity.—The State Charities Aid Association has issued its first pamphlet on insanity, in which it is stated that one-sixth of the total expenditures of the state is for the insane. The amount spent is equal to an annual tax of 70 cents on every man, woman and child in the state. The preventable causes of insanity—immoral living, alcohol and other poisons, physical diseases and mental habits—are enumerated and the belief is stated that insanity cannot be inherited and that only a tendency may be transmitted. A wider knowledge of the causes of insanity is recommended as one of the most effective means of combating it.

Wiley and Cabot in Buffalo.—Dr. Harvey W. Wiley, chief of the Bureau of Chemistry of the Department of Agriculture, Washington, D. C., delivered a lecture recently before the Buffalo Academy of Medicine, Medical Society of the County

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of Erie, Western New York Section of the American Chemical Society, and the Erie County Pharmaceutical Association on "Public Health Our Greatest Asset." A visit was paid to Niagara Falls and the various chemical industries there, and a dinner was given in honor of Dr. Wiley.——Dr. Richard C. Cabot, Boston, recently delivered a lecture before the Buffalo Branch of the American Prophylaxis Society on "Training of the Affections."

New York City

Receipts from Charity Ball.—The financial results of the German Charity Ball were $11,000, which has been distributed as follows: German Hospital and Dispensary, $2,000; St. Mark's Hospital, $1,300; St. Francis' Hospital, $1,300; German Polyclinic, $1,300; Isabella Home, $1,000; German Dispensary of the West Side, $900; German Ladies' Aid Society, $900 and Wartburg Orphan Asylum, $1,000.

New Building at Sloane Hospital.—To provide for the enlarged scope of the work at the Sloane Hospital for Women a new building for gynecologic cases has been erected. This will be open for inspection Wednesday, March 1, from 2 until 6 o'clock. The original name of the hospital, the Sloane Maternity Hospital, was changed in December, 1910, to the Sloane Hospital for Women, in order to correspond with the extended character of the work. The hospital is located at the corner of Fifty-Ninth Street and Tenth Avenue, the entrance being on Tenth Avenue.

Psychoanalytic Society Organized.—The New York Psychoanalytic Society was organized at a meeting, held February 12. The object of the society is the study of abnormal psychology, advancement of psychoanalysis, and to promote fellowship among psychopathologists. Meetings are to be held on the fourth Tuesday of each month. The society will be incorporated and become affiliated with the parent organization in Zurich, Switzerland. The following officers have been elected: president, Dr. Abraham A. Brill, New York City; vice-president, Dr. Bromislaw Onuf, Amityville, L. I.; and secretary-treasurer, Dr. Horace W. Frink, New York City.

OHIO

Diphtheria Carriers.—"Diphtheria Ernest," a boy of 7, has been found in a Cleveland school, after having infected nineteen other children in the course of several months. The boy is said to be perfectly well, and never to have contracted diphtheria. Throat cultures of 75 other children of the school showed two other diphtheria carriers.

Personal.—Dr. Frank Pennock, Marlboro, whose right arm was amputated at the shoulder at Ingleside Hospital, Canton, February 14, on account of septicemia due to an operation wound, is reported to be improving.——Dr. George W. Crile has been appointed chief of the visiting surgical staff of Lakeside Hospital, Cleveland.——Dr. Ross V. Dickey, Lima, is reported to be critically ill at his home as the result of cerebral hemorrhage.——Drs. William T. Howard and William T. Corlett, Cleveland, have started for Europe.——Dr. Samuel W. Kelley, Cleveland, is taking a trip to the Bermudas.——Dr. Charles E. Briggs has been appointed visiting surgeon and head of the surgical dispensary, and Dr. Harvey A. Becker, visiting surgeon to Lakeside Hospital, Cleveland.

PENNSYLVANIA

Philadelphia

Personal.—Dr. Aloysius J. Kelly, who has been quite ill for some time, is improving.——Dr. Charles Lincoln Furbush sailed for Europe, February 18.——Dr. S. Weir Mitchell celebrated the 81st anniversary of his birth on February 15.——Dr. Brooke M. Anspach has been made visiting surgeon to the Gynecean Hospital.

Gifts to the College of Physicians.—After the scientific program, at the session of the College of Physicians, February 1, Dr. Robert Abbe, New York City, presented to the college the gold watch of Benjamin Rush, and Dr. William W. Keen, on behalf of the donors, presented to the college a portrait of Dr. William Goodell, the noted gynecologist.

Millions Needed to Relieve Blockley.—Mayor Reyburn hopes to secure from the present legislature nearly $1,000,000 for the beginning of several charitable projects: $350,000 for a general clinical building at the Philadelphia Hospital, and $250,000 for half the cost of a building for feeble-minded women and children. These bills were introduced simultaneously in the house and senate February 15.

University Students to Aid Grenfell.—Students of the University of Pennsylvania are making plans to send a delegation to help Sir Wilfred T. Grenfell in his medical missionary work among the deep sea fishermen of Labrador. Louis F. Fallon, a sophomore, is in charge of the movement and he is collecting money for the building of a $1,000 launch to be called the *Pennsylvania* and to be used in cruising along the Labrador coast in the service of Dr. Grenfell.

Report of the Milk Commission.—The report of the commission appointed by Mayor Reyburn to investigate the city's milk supply and recommend measures to place it on a sanitary basis profitable to the producer and acceptable to the consumer, was presented to the mayor by Dr. Charles Furbush, chairman of the commission, on February 16. The commission recommended a state-wide inspection of the milk supply by the city authorities in connection with the State Live Stock Sanitary Board; the establishment of a department of milk supervision with a chief supervisor and thirty-five inspectors in the country and thirty-two in the city; an increase in the price of milk of 1 cent a quart to the consumer; a minimum all-year-round price of 5 cents a quart to be paid to the producer; inspection of restaurants, ice cream manufactories, drug stores and all places where milk is sold; establishment by the city of pasteurizing plants.

SOUTH DAKOTA

Auxiliary to State Association Organized.—The wives of members of the South Dakota State Medical Association met at Hot Springs last fall, and formed a woman's auxiliary to the South Dakota State Medical Association, the object being purely social and for the exchange of ideas. The next meeting of the auxiliary will be held in Pierre in June. Mrs. Rudolph D. Jennings, Hot Springs, is president; Mrs. Silas M. Hohf, Yankton, vice-president; Mrs. Harry T. Kenney, Pierre, secretary; and Mrs. Charles S. O'Toole, Vienna, treasurer.

Sanatorium Completed.—The State Tuberculosis Sanatorium, Custer, has been completed by the contractor and is ready to be turned over to the state. Three buildings have been erected, one for the superintendent's residence, the second, a cottage to be used as a dining room and kitchen, with a laundry in the basement, and offices for medical staff, and the third containing sleeping rooms, parlor and library. The board of control will, it is reported, ask for a further appropriation by the state of $54,000 for another building, and $50,000 for maintenance of the institution.

WISCONSIN

Personal.—Dr. Frank R. Weston, LaCrosse, has been appointed medical examiner of the local pension board.——Dr. Arthur W. Rogers has been elected president of the Oconomowoc Health Resort.

State Board Election.—At the annual meeting of the State Board of Health in Madison, January 27, Dr. William F. Whyte, Watertown, was reelected president, and Dr. Cornelius A. Harper, Madison, secretary. The board extended the order against common drinking-cups to all public buildings.

GENERAL NEWS

Research Fellowship.—The accumulated income of the Corinna Borden Keen Research Fellowship of the Jefferson Medical College, Philadelphia, now amounts to $1,000. The fellowship will be awarded by the trustees on recommendation of the faculty to a graduate of Jefferson of not less than one nor more than ten years' standing, on the condition that he spend at least one year in Europe, America, or elsewhere, wherever he can obtain the best facilities for research in the line of work which he shall select after consultation with the faculty, and that he shall publish at least one paper, embodying the results of the work as the "Corinna Borden Keen Research Fellow of the Jefferson Medical College." Applications should be made to Dr. James W. Holland, dean of the college.

The German Hospital of New York.—On the occasion of its fortieth anniversary the governing board of the German Hospital of New York has published a very complete history of the hospital. Those connected with this institution may well be proud of its growth and activities. Accompanying this pamphlet is a *Festschrift* of 593 pages containing contributions by the medical staff of the hospital and its dispensary. These papers are credited to the various services, fourteen to the medical, thirteen to the surgical, five to the gynecologic, four to the ophthalmologic, five to the dermatologic and venereal, and the remainder to the neurologic, ear, nose and throat, dental and laboratory departments, fifty in all. The material comprises the results of observations made on patients and experimental studies in the laboratory and is a valuable addition to medical literature.

FOREIGN NEWS

Bequest by Physician to Found Asylum.—A Spanish physician, Señor Don J. Garcia, who recently died at Valencia, left part of his fortune to found an asylum there for deaf-mutes and the blind.

Statue to Albarran.—The town of Sagua la Grande in Cuba has recently erected a marble statue of "its most illustrious son," Professor Joaquin Albarran, chief of the clinic at Paris for disease of the urinary apparatus. He succeeded Guyon in this much-coveted post in 1906. The statue was erected by popular, nation-wide subscription; a memorial tablet was also placed on the house where he was born.

Fine for Methyl Alcohol Adulteration of Brandy.—Last year a number of serious cases of poisoning at Budapest were traced to the use of a special make of brandy. Investigation revealed that methyl alcohol had been used in its production and was evidently responsible for the poisoning. The distiller was recently sentenced to pay a fine of $2,800 for involuntary homicide resulting from neglect of due caution.

Honor for Professor Schwalbe.—The honorary title of Geheimer Sanitätsrat has been conferred on Professor J. Schwalbe of Berlin, editor of the *Deutsche medizinische Wochenschrift*, of the medical directory for Germany, of a year-book and of several manuals and treatises. Professor Schwalbe, although only 49 years old at present, has long taken a leading part in all matters affecting the welfare of the profession and especially in the propaganda for reform of nostrum abuses.

Deaths in the Profession Abroad.—In addition to the deaths reported by our correspondents, the profession has lost recently Professor G. Profeta of Florence, one of the leading dermatologists of Italy until his retirement a few years ago, author of several manuals on dermatology and syphilis but best known by his assertion that a non-syphilitic child born of syphilitic parents is immune—the so-called Profeta's law.——T. Noriega, professor of pathology and history of medicine at Mexico.——Prof. J. M. Bandera, a prominent ophthalmologist and leader in medical affairs in Mexico, and member of various ophthalmologic and medicolegal societies at home and abroad, aged 73.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Feb. 11, 1911.

A Revolution in Bread

A remarkable agitation in favor of more nutritious bread than the ordinary white bread which is almost exclusively eaten by all classes has produced an immense change in the bread supplied by bakers. White bread, introduced as a luxury for the rich, has been adopted by all classes. In order to obtain the more attractive white appearance valuable ingredients contained in the germ and inner husk of the wheat and consisting of protein and salts are removed. Prominent among the evils attributed to the consumption of white bread is dental caries, which is so prevalent and severe that it may be described as a national disaster. In the presence of this great evil of removing from the most important food some of its most valuable ingredients, the medical profession has been very supine. From time to time an occasional article has appeared in medical journals pointing out the defects of white bread, but it has had no more effect than the periodical wail on the abandonment of blood-letting. The only persons who have shown themselves alive to the situation are the vegetarians, who in renouncing most animal foods have shown a keen desire to get as much as possible out of their vegetable food; they have always consumed whole-meal bread. But outside their own sect they have no influence. One association, the "Bread and Food Reform League," somewhat allied to the vegetarians, has for years made praiseworthy attempts to advocate the use of whole-meal bread and has pointed out that much of the underfeeding of the poor is due to ignorance of the value of this bread rather than to want of means. But their words have fallen on deaf ears and it is very difficult to obtain a good whole-meal bread. The bakers sell an inferior article, a brown loaf which is made from a mixture of ordinary white flour with a little bran. In the lay press an agitation in favor of the old cream-colored loaf which is termed "standard bread," and defined as "bread made from unadulterated wheat and containing at least 80 per cent of the whole wheat, including the germ and semolina," has produced such an effect in a few days that the result must be described not as a reform in but as a revolution in bread. Prominent physicians and health officers are supporting the movement. It is proposed to introduce a bill into parliament for the standardization of bread and the proposal has received the support of members of all parties.

Great Increase of Street Accidents Due to Motor Traffic

An alarming increase in the number of street accidents from the recent development of motor traffic is shown by the report issued by the Highways Protection League. In 1905, thirty-five persons were killed and 1,557 injured by accidents due to motor traffic, while 118 were killed and 6,323 injured by horse traffic. In 1909, 163 persons were killed and 6,579 were injured by motor traffic, while 123 were killed and 5,589 were injured by horse traffic.

Daring Experiment of a Physician on Himself with Typhoid Bacilli

Dr. Houston, director of water examination to the Metropolitan Water Board, has made a daring experiment on himself with typhoid bacilli. He was testing the effect of river water on the vitality of typhoid bacilli which had never been subcultured. He found that the bacilli rapidly perished in Thames water. Although well satisfied with the negative results, he put the matter to the crucial test of drinking half a pint of the infected water (which contained initially 218 million typhoid bacilli) on the twenty-fourth day from the start of the experiment without any ill result. In the discussion which followed the reading of this report, Dr. R. M. Beaton, chairman of the water examination committee, suggested that as the punishment of hanging was a rude practice experiments of this kind should be made with condemned criminals.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Feb. 3, 1911.

Antityphoid Vaccination

During the discussion on the etiology and prophylaxis of typhoid fever last year at the Académie de médecine, on motion of Professor Chantemesse, a commission was appointed to study antityphoid vaccination (THE JOURNAL, March 5, 1910, p. 804). Dr. H. Vincent, for the commission, has just laid before the academy a report to the following effect: The facultative use of antityphoid vaccination should be recommended as a practical and rational means of diminishing the frequency and gravity of typhoid fever in France and in the colonies. This recommendation is addressed to all whose profession, usual or accidental conditions of food or habitat, daily or frequent relation with persons or bacillus carriers, expose them to direct or indirect contagion. This proposition brought forth vigorous protests from Dr. Delorme, *médecin inspecteur général* of the army, who considers the conclusion of the commission as premature and overdrawn. While recognizing that antityphoid vaccination is, at present, of interest to scientific and administrative circles, Dr. Delorme believes that in view of the well-known imperfections of the method (incomplete immunization, negative phase, local and general complications, numerous contra-indications) the Académie de médecine, the counselor of the public authorities, is scarcely authorized to recommend the employment, even facultative, of methods which are still so uncertain, imperfect and cumbered with so many disadvantages and even dangers.

The Health Resorts and Spas of France

A parliamentary group has recently been formed to promote the interests of the thermal and climatic stations of France. It already comprises more than 100 senators and deputies. Its program includes: (1) investigation into the means to give the greatest effect to the law taxing transients at such resorts, passed in 1910 (THE JOURNAL, April 23, 1910, p. 1388); (2) creation of a chair of hydrology and climatology at the Faculté de médecine de Paris; (3) creation of a great institute of hydrology and climatology which shall centralize all the chemical, physical, geologic and mineralogic researches needed by our stations to extend their usefulness and to complete the instruction of young physicians who wish to specialize in hydrology and climatology.

The law imposing a tax on visitors will furnish important revenues for the improvement of the hygiene of the stations, and their embellishment, etc. The creation of a chair of hydrology and climatology at the Faculté de médecine de Paris has been demanded for twenty years by all the congresses on hydrology and by associations of physicians interested in the subject. The innovation will have the greater chance of success because it will cost the government nothing, since the

Syndicat des stations thermales de France, which is directly interested in the question, has undertaken to provide the expense of the chair. The only condition imposed by the *syndicat* on its gift is that the professor appointed shall be competent, and shall promise to regard the position as permanent, not as a temporary makeshift.

Measures Against the Propaganda for the Prevention of Conception

The criminal court of the Seine has just condemned a certain Lip Tay, who has two advertisements with reference to the prevention of conception in a catalogue of special publications. Lip Tay's defense was that he was simply popularizing medical information. The court, however, did not sustain his plea and condemned him to pay $40 fine (200 francs) on the ground that this propaganda was an offense against morals. This decision will tend to arrest the propaganda.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Feb. 2, 1911.

Personal

Professor Ehrlich is the only medical trustee on the board of the newly founded Kaiser Wilhelm Society for Scientific Research (Gesellschaft für Förderung der Wissenschaften), half of whose members are elected by the society and the other half appointed by the Kaiser.

Professor Roentgen of Münich, Professor Hering of Leipsic, and Professor Retzius of Stockholm have received membership in the order of science and arts (Orden pour le Mérite der Wissenschaften und Künste), one of the few among the numerous Prussian orders which is bestowed only for actual achievement.

Professor Bier, director of the surgical clinic at Berlin, has been elected a foreign member of the Belgian academy of sciences.

Honorary Title for the Kaiser

The promotion of the Kaiser to the honorary title of Doctor by the Prague medical faculty will take place soon in the throne room of the palace in Berlin. The rector of the Prague German university, the present dean of the medical faculty, Professor v. Jaksch and Professor Hering will come to Berlin to officiate.

Multiple Offices for Physicians

In Berlin and probably also in other large cities of Germany it has been for some time the custom for a number of specialists to have offices for private patients in two places in the city, one in their private residence and one in their private clinic or the policlinic. The first is usually in the fashionable western part of the city and the latter in the center or in the outskirts. The reason for this condition is that the central part of Berlin, like London and New York, is gradually being given up more and more to business, for which reason the larger part of patients able to pay have migrated to the west and the physicians follow them but keep their office down town for the patients who still remain in that locality. As other physicians are injured by this doubling of offices there have been complaints made against this custom in the medical press and in the medical societies. As a result the business committee of the Berlin Medical Society, a short time ago, took up the question and made the following decision:

1. Policlinics in their essence and their historical development are institutions for the gratuitous treatment of the section of the public which is unable to pay. In addition to this humanitarian purpose they should serve the scientific and technical education of the physicians in charge, their assistants and other physicians. The gratuitous treatment of members of the Krankenkassen in the policlinics, dispensaries and the offices of the insurance physicians, has led, under the influence of the social legislation, to a deviation from the principal aim of gratuitous treatment. A further conversion of the policlinic and similar institutions into additional offices in which private patients are treated for pay, is as a whole contrary to the interests of special practice and of the medical profession.

2. The need for several offices for a physician doing a general practice does not exist to an extent to justify a deviation from the method in which medical practice has hitherto been carried on.

3. The decision as to whether in individual cases the maintenance of several offices for pay patients is permissible or not belongs only to the state medical court of honor.

Athletics at the Berlin University

The senate of the Berlin university has now acceded to a long-cherished wish of the university circles interested in gymnastics and sport by appointing, on motion of the university turner society, an academic committee which is to be the highest authority on all questions which concern physical exercise. The committee consists of the rector, Professor Rubner, Professor Waldeyer, Professor N. du Bois-Reymond, and others. The Berlin university in adopting this thoroughly modern arrangement which gives expression to the idea that the university should care not alone for the intellectual but also for the physical education of its youth is following the example of Breslau and Marburg. It now will be the task of the student body to show an interest in the matter corresponding to that of the authorities.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Feb. 3, 1911.

Expenditures for the Medical Schools

The ordinary budget for medical teaching in Austria has a few days ago been finally fixed, and the figures are now published. For this purpose 6,000,000 kronen ($1,200,000) will be spent. Of this sum, Vienna receives 2,154,000 kronen ($430,800); Graz requires only 625,000 kronen ($125,000); Innsbruck 453,000 kronen; Prague, which has two medical schools, a German and a Slavic one, requires for each about 740,000 kronen or $150,000. Besides there are two Polish medical schools, one in Lemberg, requiring 480,000 kronen or $96,000, and one in Cracow, which receives $150,000. These sums cover only the ordinary expenditure; the sum of $50,000 is devoted to extraordinary expenses. Apart from these figures, the fees and salaries for special subventions and rewards amount to another $360,000. There are active at present:

	Vienna.	Prague.	Graz.	Innsbruck.	Lemberg.	Cracow.	Total.
Ordinary professors	25	31	14	15	14	15	114
Extraordinary professors	14	25	4	4	3	8	58
Assistants	86	85	37	31	34	38	311
Second-class assistants	6	6	1	2	0	1	16
	131	147	56	52	51	62	

The rent paid for certain of the medical university buildings amounts to over a million kronen, showing an increase of 15 per cent. since last year. The endowment of the institutions with grants and other sums for teaching material reaches more than double that sum. There are also certain paid lectures not strictly belonging to the medical teaching (photography, physical experimentation) which will cost 50,000 kronen ($10,000), and a sum of 100,000 kronen ($20,000) has been set apart for traveling grants (for researches).

The Austrian Antimalaria Campaign 1906-1909

The prevalence of malaria in certain parts of the Austrian coastland has prompted the government to institute a systematic campaign against the spread of this disease there. The official report states that in the first year 5,387 persons were examined, of whom 1,256, or 23 per cent., were found needy of treatment. In 1907, 3,192 persons were examined, 42 per cent. of this number were requiring antimalarial treatment. In one district fully 100 per cent. of the population were infected, while the lowest figure was 12 per cent. According to the instructions, in the endangered zone also persons who were not infected, but exposed to infection, were treated prophylactically. In the year 1909, only 3,351 more persons were examined. Of these, only 7 per cent. were found infected, whilst 1,848 (55 per cent.) received prophylactic treatment. In 1907, the districts examined contained 1,038 infected persons out of a population of 2,497, or 41 per cent., while another 384 persons presented themselves for prophylactic treatment. This was always free of charge, and consisted in administration of quinin sulphate in doses of 5 grains, together with arsenic and iron. From the examined districts, which have been under control since 1903 till 1908, every case of fever had to be reported and then examined for malaria. Out of a population of 18,774, 663 fresh infections were reported in these six years. As the people became persuaded of the benefit obtained from the regular treatment and persistence of control, the patients came in more regularly and finally there was no trouble at all, though at first some difficulty was experienced in inducing the uneducated peasants to submit to medical supervision.

Marriages

MILTON M. SPITZ, M.D., to Miss Belle Landau, both of Milwaukee, Wis., February 7.

J DALLAS CROOM, JR., M.D. Maxton, N. C., to Miss Ruth Roberts of Attalla, Ala., recently.

LAURENCE FRANK KEITH, M.D., to Miss Elsie May Turner, both of Melrose, Mass., February 15.

JOHN C. BULLITT, M.D., to Miss Edna Dever, both of Philadelphia, at Bingham, Mass., recently.

ALONZO J. FITZPORTER, M.D., St. Louis, to Miss Marie Wanda Krebs of Belleville, Ill., February 8.

ALANSON HALDEN JONES, M.D., Los Angeles, to Miss Adele Stookey of Hermosa Beach, Cal., January 31.

GEORGE E. THOMPSON, M.D., Kenosha, Wis., to Mrs. Anna Grun Lindstedt of Manitowoc, Wis., February 2.

WILLIAM SCHNEIDER SHIRK, M.D., Kansas City, Mo., to Miss Mary Gertrude McCourt of McPherson, Kan., at Kansas City, February 2.

Deaths

Joseph Rowe Smith, Brigadier General Medical Corps, U. S. Army, retired, died at the home of his sister in Philadelphia, February 11, from pneumonia, aged 79. He was graduated from the University of Buffalo, N. Y., in 1853, and a year later was commissioned as assistant surgeon in the army; five years later he was promoted to captain, and served in the west and southwest until the outbreak of the Civil War. When on duty at San Antonio, Tex., he was captured by the Confederates; and on being paroled was assigned to the duty of organizing hospitals. In 1862, he received his promotion to major, and at the close of the war was medical director of the Seventh Army Corps, and had been brevetted lieutenant colonel for "superior ability and excellent management of the affairs of the department." He was promoted to lieutenant colonel in 1885, attained his colonelcy in 1890; was retired by operation of law in 1895, and attained the rank of brigadier general, retired, nine years later. His last official duty was as medical director of the Department of the East. He was a member of the American Medical Association for many years, and vice-president in 1877, and was the Army delegate to the Association from 1874 to 1878, inclusive, and from 1882 to 1885, inclusive. He was also a delegate to four international medical congresses. General Smith was the author of a number of standard medical works, bearing particularly on the care and treatment of soldiers. He was one of the incorporators of the New York Post-Graduate Medical School and Hospital, and a member of the Association of Military Surgeons of the United States, American Academy of Medicine and many other medical societies.

Uranus Owen Brackett Wingate, M.D., for several years health commissioner of Milwaukee, and for ten years secretary of the Wisconsin State Board of Health; died at his home in Milwaukee, February 19, from pneumonia, aged 62. He was born in Rochester, N. H., enlisted in the Army at the age of 16 and served throughout the Civil War. He attended three courses of lectures at Harvard Medical School, and Dartmouth Medical School, Hanover, N. H., graduating from the latter institution in 1875. He practiced until 1886 in Haverhill and Wellesley, Mass., and served for five years as a member of the Medical Corps of the Massachusetts Volunteer Militia. In 1886, he moved to Milwaukee, four years later was made health commissioner of the city, and 1894, was appointed secretary of the Wisconsin State Board of Health. He was a member of the American Medical Association, and for several years chairman of the committee on the national department of health; the American Public Health Association, American Psychological Association, and the Milwaukee County Medical Society, of which he was once president. He was professor of diseases of the nervous system and hygiene in the Wisconsin College of Physicians and Surgeons; visiting neurologist to St. Mary's and Milwaukee County Hospitals, and consulting neurologist to St. Joseph's Hospital. He contributed many articles on subjects connected with his specialties, to the medical literature.

Horace Wilbur Patterson, M.D. College of Physicians and Surgeons, New York City, 1895; a member of the Medical Society of the State of New York; and for five years secretary of the Richmond County Medical Society; chief of the department of communicable diseases of the Department of Health of Richmond Borough, and pathologist to the S. R. Smith Infirmary; assistant surgeon of the First New Jersey Infantry, U. S. V., during the Spanish-American War, and afterwards captain and assistant surgeon of the First Infantry, N. J. National Guard, and First Lieutenant Medical Reserve Corps, U. S. Army; died in the S. R. Smith Infirmary, February 5, after an operation for cholelithiasis, aged 38.

James Kerr, M.D. Queen's University, Dublin, Ire., 1870; a member of the Medical Association of the District of Columbia; professor of surgery in Georgetown University; and a member of the surgical staff of Providence and Emergency Hospitals and the Woman's Dispensary; surgeon in the British service during the Ashanti war; later chief surgeon of the Canadian Pacific Railway; surgeon in the Canadian militia; one of the organizers of, and president and professor of surgery in the Manitoba Medical College, Winnipeg; since 1888 a resident of Washington, D. C.; died at his country home near Warrenton, Va., February 2, aged 62.

Samuel David Hopkins, M.D. University of Pennsylvania, Philadelphia, 1893; a member of the American Medical Association, and American Neurological Society; professor of nervous and mental diseases in the Denver College of Medicine and Surgery; president of the staff of St. Joseph's Hospital, and neurologist to Denver County Hospital; a specialist on nervous and mental diseases; died in St. Joseph's Hospital, Denver, February 4, two days after an operation for appendicitis, aged 38. At a special meeting of the City and County of Denver, resolutions were adopted eulogizing the character, work and personality of Dr. Hopkins.

Joseph B. Ward, M.D. Hahnemann Medical College, Philadelphia, 1857; at one time professor in the Homeopathic Medical College of Missouri, St. Louis; assistant surgeon of the Eleventh New York Volunteer Infantry during the Civil War; for two years vice-president of the New Jersey Tuberculosis Commission; chairman of the executive committee of the State Horticultural Society; a member of the executive committee of the State Board of Agriculture; died at his home in Newark, February 3, from heart disease, aged 76.

James Buchanan Walker, M.D. Miami Medical College, Cincinnati, 1882; local surgeon at Effingham, Ill., of the Illinois Central, Vandalia, and Wabash Railways; a member of the surgical staff of St. Anthony's Hospital; a member of the American Medical Association, and Æsculapian Society of the Wabash Valley, and American Association of Life Insurance Examiners; supreme medical examiner of the fraternal order of Modern Americans; died at his home, February 11, from cerebral hemorrhage, aged 54.

Edwin Powell, M.D. Rush Medical College, Chicago, 1857; formerly demonstrator of anatomy and professor of military surgery in his alma mater; surgeon of the Seventy-Second Illinois Volunteer Infantry, and later in charge of the Seventeenth Army Corps Hospital and the McPherson General Hospital during the Civil War; a member of the staff of Cook County Hospital; died at his home near Maryville, Mo., February 13, from influenza, aged 76.

Edwin Gilmore Knill, M.D. University of Toronto, 1882; M.R.C.S., Eng., L.R.C.P., Lond., 1883; L.R.C.S., L.R.C.P., Edin., 1883; a member of the Michigan State Medical Society; adjunct professor of pathology and morbid anatomy, and clinical professor of medicine in the Detroit College of Medicine; a member of the staff of Harper Hospital; died at his home in Detroit, February 10, from cerebral hemorrhage, aged 55.

Columbus Henry, M.D. University of Pennsylvania, Philadelphia, 1871; formerly a member of the Delaware State Medical Society and State Board of Medical Examiners; for many years president of the Board of Trustees of the Poor of Newark, Del., and president of the Board of Trustees of the Newcastle County Hospital; died at his home in Newark, January 14, from hepatic and arteriosclerosis, aged 67.

Frank S. Low, M.D. Castleton (Vt.) Medical College, 1850; once president of the Oswego County Medical Society and vice-president of the Medical Society of the State of New York; consulting physician to the Oswego City Hospital; once sheriff and coroner of Oswego County, N. Y.; a member of the board of education; died at his home in Pulaski, February 3, aged 82.

Reuben Conway Shultz, M.D. New York University, New York City, 1880; a member of the Medical Society of the State of California; for several years a member of the staff of the *New York Medical Journal*, but for the last thirteen years a resident of Los Angeles; died at his home in that city, January 29, from chronic bronchitis, aged 57.

Carter Lurton Broaddus, M.D. Vanderbilt University, Nashville, Tenn., 1892; a member of the Kentucky State Medical Society, and formerly vice-president of the Trigg County (Ky.) Medical Society; for many years a resident of Hopkinsville; died in Lebanon, Tenn., January 11, from cerebral hemorrhage, aged 48.

Riley Allen Atkins, M.D. Medical College of Virginia, Richmond, 1864; a member of the Newport News Medical Society; a sailor in the Confederate navy during the Civil War, detailed to hospital duty; surgeon for the Virginia Railway at Pine Beach; died at his home, January 9, from pneumonia, aged 74.

Walter Howard Snow, M.D. New York University, New York City, 1880; formerly physician to the Society for the Prevention of Cruelty to Children, and instructor in gynecology in the University of the City of New York; died at his home in New Lebanon, N. Y., January 27, from uremia, aged 51.

Joseph Clements, M.D. Kansas City (Mo.) Medical College, 1891; and later clinical instructor on diseases of children in his alma mater; for twenty years a clergyman; a writer on psychology and metaphysics; died at his home in Wichita, Kan., January 31, from valvular heart disease, aged 70.

John Cassilis Cockburn, M.D. Harvard Medical School, 1872; a member of the American Medical Association; once president of the Hennepin County Medical Society; for thirty-one years a practitioner of Minneapolis; died at his home in that city, February 5, from interstitial nephritis, aged 69.

Jane Howell Harris, M.D. Woman's Medical College of the New York Infirmary for Women and Children, 1899; for eight years a medical missionary of the Presbyterian Board in San Juan, Porto Rico; died at her home in Isabela, Porto Rico, Nov. 21, 1910, from pneumonia, aged 38.

William Menger, M.D. New York University, New York City, 1897; of Union Hill, N. J.; while suffering from mental disorder and an inmate of a sanitarium at Paterson, N. J., is said to have cut his throat, January 8, inflicting a wound from which he died soon after, aged 34.

Hubert Pemberton Doak, M.D. University of Nashville, Tenn., 1893; a member of the Tennessee State Medical Association; formerly of Greenville, and secretary of the local pension examining board; died at his home in Tusculum, February 5, from pneumonia, aged 46.

Augustine von Galny, M.D. University of Berlin, Germany, 1847; (license, Eighteenth Judicial District Board, Texas,, 1878); surgeon in the Prussian and Danish armies; a member of the State Medical Association of Texas; died at his home in Galveston, February 1, aged 83.

George W. Menees, M.D. Vanderbilt University, Nashville, 1879; a member of the Missouri State Medical Association; health officer of Clinton; died February 7, from the inhalation of fumes of formaldehyd, after disinfecting a house where small-pox had occurred, aged 54.

Joseph Preston Gray, M.D. University of Tennessee, Nashville; a graduate in both medicine and dentistry; a member of the American Medical Association; and of the Nashville Academy of Medicine; died at his home, Sept. 30, 1910, from cerebral hemorrhage, aged 55.

John Warner Kniskern, M.D. Albany (N. Y.) Medical College, 1890; ophthalmic and aural surgeon to the Amsterdam (N. Y.) Hospital; a specialist in diseases of the eye and ear; died at his home in Amsterdam, January 31, from tuberculosis of the throat, aged 43.

Alexander McKlveen McLain, M.D. Western Pennsylvania Medical College, Pittsburg, 1898; of Post Falls, Ida., formerly of Irwin Pa.; for two years a member of the village council; died in Spokane, Wash., January 12, from pernicious anemia, aged 51.

James A. C. Milliken, M.D. Medical School of Maine, Brunswick, 1910; assistant in the Western Washington Hospital for the Insane, Fort Steilacoom; died at his home in New Bedford, Mass., Dec. 29, 1910, from lymphatic leukemia, aged 25.

George Augustus Steinicken, M.D. University of Pennsylvania, Philadelphia, 1890; of New York City; until 1904 a practitioner of Wilmington, Del.; died in Roosevelt Hospital, New York City, Dec. 22, 1910, from pneumonia, aged 45.

Alfred Augustus Herrmann, M.D. College of Physicians and Surgeons, Chicago, 1904; of Chicago; a member of the American Medical Association; died in Pasadena, Cal., Nov. 29, 1910, from tuberculosis of the kidney, aged 30.

John Kapp, M.D. University of Michigan, Ann Arbor, 1868; a member of the Michigan State Medical Society; for three terms mayor of Ann Arbor; died at his home in Los Angeles, January 17, from general breakdown, aged 69.

Benjamin W. Searle, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1873; of Ottumwa, Ia.; a veteran of the Civil War; died in Wesley Hospital, Chicago, February 17, after an operation for appendicitis, aged 69.

Leroy Hall Sibley, M.D. College of Physicians and Surgeons, Chicago, 1903; a member of the Vigo County (Ind.) Medical Society; died at his home in Terre Haute, Sept. 26, 1910, from pulmonary tuberculosis, aged 30.

Leroy W. Heath, M.D. Cleveland University of Medicine and Surgery, 1882; a member of the Medical Society of the State of Pennsylvania; died at his home in Mercer, Pa., January 26, from general paresis, aged 52.

Cyrenius Benjamin Vaughan, M.D. Bellevue Hospital Medical College, 1875; a member of the Medical Society of the State of New York; died at his home in Morrisonville, February 1, from heart disease, aged 64.

Louis deValois Wilder, M.D. Hahnemann Medical College, Philadelphia, 1855; for many years chief surgeon of the Flower Hospital; died at his home in New York City, February 5, from heart disease, aged 93.

James Marshall Tinsley, M.D. University of Louisville, Ky., 1880; formerly of Champaign, Philo and Rantoul, Ill.; died at his home in Mount Vernon, Ill., February 2, from cerebral hemorrhage, aged 61.

Leo J. O'Shaughnessy, M.D. Kansas City (Mo.) Hahnemann Medical College, 1908; was shot and killed in a pistol duel with a brother physician, in his office in Wetumka, Okla., February 3, aged 28.

Richard Maury Cunningham, M.D. Vanderbilt University, Nashville, 1892; for thirty-three years a practitioner of Tennessee; died at his home in Palmyra, Nov. 25, 1910, from pneumonia, aged 74.

Frank H. Fisk, M.D. Albany (N. Y.) Medical College, 1883; a member of the Medical Society of the State of New York; died at his home in West Sand Lake, January 22, from lobar pneumonia, aged 56.

Edward Francis Dodd, M.D. University of Nebraska, Lincoln, 1887; for twenty years a practitioner of Newport, Neb.; died at Fairview, Okla., Dec. 29, 1910, from edema of the glottis, aged 47.

Isaac Francis Coffin, M.D. New York University, New York City, 1885; coroner of Herkimer County, N. Y., in 1900; died at his home in North Ilion, Dec. 23, 1910, from spinal disease, aged 62.

Charles Eugene Arthur Dorval, M.D. Victoria College, Coburg, Ont., 1874; of Montreal; died in the Hôtel Dieu in that city, Dec. 26, 1910, from peritonitis, following a gastric ulcer, aged 58.

Lawrence Ryan, M.D. Dublin (Ire.) Medical College; at one time medical health officer of Edmonton, Alta.; died in Saskatoon, Sask., Nov. 10, 1910, from heart disease complicating typhoid fever.

Alfred Wesley Bear, M.D. Washington University, Baltimore; for nearly forty years a practitioner of Barnard, Mo.; died at his home in that place, January 21, from influenza, aged 69.

Felix Dydine Fontaine, M.D. Laval University, Montreal, 1857; (license, Massachusetts, years of practice, 1894); died at his home in Worcester, January 31, from senile debility, aged 79.

Henry Rutgers Cannon, M.D. New York University, New York City, 1843; first clerk of Union County, N. J.; died at his home in Elizabeth, January 9, from senile debility, aged 89.

Lincoln D. Foreman, M.D. American Medical College, Eclectic, St. Louis, 1884; slipped from a ladder at his home in Peoria, Ill., February 9, and was instantly killed, aged 49.

Seth H. Truesdale, M.D. Western Reserve University, Cleveland, 1876; a veteran of the Civil War; died at his home in Poland, O., February 5, from locomotor ataxia, aged 69.

George W. Ray, M.D. Rush Medical College, 1867; a pioneer practitioner of Joplin, Mo.; died at St. John's Hospital in that city, February 8, from pernicious anemia, aged 68.

George W. Corman, M.D. American Medical College, Eclectic, St. Louis, 1883; of Paris, Ark.; died on a train near Lavaca, Ark., Dec. 15, 1910, from heart disease, aged 54.

Thomas Graham, M.D. Grand Rapids (Mich.) Medical College, 1907; died at his home in St. James, Beaver Island, Mich., January 16, from diabetes, aged 34.

Lawrence Ellsworth Jones, M.D. Howard University, Washington, D. C., 1907; died at his home in Rochester, Pa., Dec. 28, 1910, from acute nephritis, aged 31.

F. C. Woodard, M.D. Louisville (Ky.) Medical College, 1887; a member of the American Medical Association; died at his home in Grapeland, Tex., January 31, aged 63.

James Arthur Metcalfe, M.D. Louisville (Ky.) Medical College, 1873; died at his home in Los Angeles, Cal., January 18, from carcinoma of the leg, aged 58.

Evan Jones, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1876; died at his home in New Cambria, Mo., January 30, from pneumonia, aged 65.

John C. David, M.D. Hahnemann Medical College, Chicago, 1878; died at his home in Sandwich, Ill., February 2, from cancer of the esophagus, aged 62.

J. W. Bartlett (license, Kentucky, thirty-six years of practice, 1893); died at his home in Kirkmansville, February 8, from senile debility, aged 78.

Theodore Rahlfs, M.D. Rush Medical College, 1888; died in his office in Tacoma, Wash., January 23, in an epileptic convulsion, aged about 60.

George Fisk Wilber, M.D. Long Island College Hospital, Brooklyn, 1864; died at his home in Nashua, N. H., January 21, aged 71.

Association News

THE LOS ANGELES SESSION

Arrangements Being Perfected for the Next Annual Session

Readers of THE JOURNAL will be kept informed from week to week concerning the arrangements for the Los Angeles Session. In the last issue, a list of hotels was published, giving the rates, capacities, etc., and a preliminary announcement of the railroad rates; and this week there is given some information about special trains and entertainments.

Entertainments

The Los Angeles Session bids fair to stand out with unusual prominence with respect to the amount and quality of entertaining done by the local profession. The matter is spoken of thus early to encourage members to plan to go to Los Angeles. The occasion will be one of great enjoyment. Some of the entertainments are as follows: On Friday those who have finished their section work will be taken by boat to the famous Catalina Island and given a barbecue. This trip will be duplicated on Saturday for the others in attendance.

Friday will also be called Pasadena Day. Shortly after noon, when all the scientific work will have been completed, there will be an automobile trip to Pasadena with a Spanish barbecue in the Sunken Gardens. This will be followed by chariot races in Tournament Park, especially arranged for the benefit of the members of the American Medical Association. The day will be concluded by trips to the seashore with entertainments at Venice and Ocean Park.

On Saturday those who do not wish to go to Catalina Island may take a trip to San Pedro Harbor and Long Beach with lunch at the Hotel Virginia.

Other trips in the vicinity, for which especial railroad rates will probably be granted, are to the olive orchards of San Fernando, to the orange groves of Riverside and Redlands and to San Diego, the renowned resort some miles down the coast.

Judging from the inquiries received by various committees, the attendance at Los Angeles will probably be larger than a good many prophets anticipated, who were judging solely by the distance of the meeting-place from the center of the United States. The attractiveness of Los Angeles and the opportunity of various trips are two things which will largely tend to counteract the distance. For this reason we repeat the suggestion of last week, given in connection with the list of hotels, and urge those who expect to go to Los Angeles that they reserve hotel accommodations early. There are plenty of hotels, but those who write for accommodations late cannot expect to have their choice of the best rooms.

Announcement of Transportation Committee

In looking over the numerous letters of the members received in response to the request published in THE JOURNAL, Dec. 10, 1910, p. 2078, it is found that a large majority of them are in favor of taking the southern route to Los Angeles in June. The committee therefore announces that it has arranged for a special train from Chicago to Los Angeles over the Santa Fé route. This train, which will be a counterpart of the famous California Limited, will afford every first-class accommodation, standard berths, compartments and drawing-rooms. There will be a fully equipped club car with valet and barber in attendance, dining car and observation car. The club car and observation parlor are supplied with an abundance of the best current magazines and newspapers, a carefully selected library and writing material.

This train will leave Chicago at 8:00 p. m., Wednesday, June 21, and will run in accordance with the following schedule:

TIME SCHEDULE OF SPECIAL TRAIN

Lv. Chicago	8:00 p. m.,	Wednesday,	June 21
Ar. Kansas City	9:00 a. m.,	Thursday,	June 22
Lv. Kansas City	9:10 a. m.,	Thursday,	June 22
Ar. Albuquerque	11:05 a. m.,	Friday,	June 23
Lv. Albuquerque	12:30 p. m.,	Friday,	June 23
Ar. Laguna	2:30 p. m.,	Friday,	June 23
Lv. Laguna	3:30 p. m.,	Friday,	June 23
Ar. Grand Canyon	6:00 a. m.,	Saturday,	June 24
Lv. Grand Canyon	10:00 a. m.,	Sunday,	June 25
Ar. Los Angeles	7:00 a. m.,	Monday,	June 26

At Albuquerque a stop of one hour and a half will be made in order to afford an opportunity for all to visit the very interesting collection of Indian and Mexican hand work. This is undoubtedly the finest collection of Indian and Mexican work in the world. At Laguna a stop of one hour will be made, affording an opportunity to visit the Pueblo Indian village. These short stops not only break the monotony of the trip but also permit of sight-seeing which cannot be had on any of the regular trains.

A stop of twenty-eight hours will be made at the Grand Canyon. It is unnecessary to dilate on the wonderful beauty of this work of Nature. The time spent here is sufficiently long to permit of descending into the canyon and also of visiting points of interest on the rim. Being there over night also affords an opportunity of seeing the sun rise and set. These sights alone are well worth the trip.

The train will arrive at Los Angeles at 7:00 o'clock Monday morning in time for the delegates to attend the opening meeting of the House of Delegates. For those members who do not care to reach Los Angeles before Monday evening, arrangements will be made whereby cars will be taken via Redlands and Riverside and sufficient time given to visit both these interesting points, reaching Los Angeles about 6:00 p. m.

The round trip fare from Chicago is $62.50 with an addition of $6.50 for the Grand Canyon side ride. The Pullman rates are, upper berth $12.80, lower berth $16.00, compartment $45.00, drawing-room $56.00. These rates include the side trip to the Grand Canyon and also provide for the occupancy of the cars at the Grand Canyon if so desired.

One may return by any direct route, which means by any route going as far north as San Francisco and Ogden. To those who wish to return by any of the northern routes, an additional fare of $15.00 will be charged. These rates are not available for both going and returning by the northern routes. All those, therefore, who contemplate visiting Yellowstone Park, the Canadian Rockies or other points of interest on the northern routes are cautioned to see that they go by some of the southern routes and arrange for these stop-overs on their return trip. There will be plenty of time to make all of these trips after the meeting on the return passage, as the return limit on the tickets is September 15, but there will not be time to make these extended side trips going.

Announcement of eastern rates and trains will be made later.

M. L. HARRIS, Chicago,
Chairman, Committee on Transportation.

"The Propaganda for Reform"

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION.

REPORT OF THE COMMITTEE ON PHYSIOLOGIC ASSAY

Of the Philadelphia Branch of the American Pharmaceutical Association *

DR. T. C. GITHENS, DR. C. A. HOFER, DR. JOHN C. SCOTT, and DR. H. C. WOOD, JR., Chairman

The Committee on Physiologic Assay of the Philadelphia Branch of the American Pharmaceutical Association has considered the advisability of introducing into the Pharmacopeia physiologic tests for the following drugs: apocynum, convallaria, digitalis, squill, strophanthus, aconite, gelsemium, lobelia, veratrum, cannabis, ergot, pepsin, suprarenals, thyroid, chenopodium, granatum, kousso, santonica, cimicifuga, gossypii cortex and phytolacca.

Cimicifuga, gossypii cortex and phytolacca seem of too little importance to require physiologic standardization.

The vermifuges—chenopodium, granatum, kousso and santonica—might, we believe, readily be standardized according to the method which was employed, in connection with the oil of chenopodium, by Brunning,[1] who determined the vermicidal effect on the intestinal worms obtained from the alimentary tract of dogs and cats. Inasmuch, however, as we are unaware of any application of this method for the purpose of standardization and as time was insufficient for experimental work on the part of the committee, we do not feel inclined to recommend the introduction of physiologic tests in connection with these drugs, although we would call the attention of the Committee on Revision of the Pharmacopeia to the possibility of such standardization.

Cannabis.—Two standards have been suggested for cannabis indica. That which is most frequently employed is the amount which is required to produce muscular incoordination in the dog. The other is the amount required to produce narcosis in the frog. As regards the second of these tests, the fact that cannabis indica is practically insoluble in water and that frogs are very susceptible to the action of alcohol seems to us to preclude its use. In regard to the first test, it has been the universal experience that there is a large variation in individual susceptibility in different dogs, so that to obtain results which are even approximately accurate it is necessary to use the same dog repeatedly. The prolonged use of the drug, however, appears to beget a certain amount of immunity toward it, so that one dog can be used for only a comparatively small number of tests. Even with the utmost precautions, the results are far from accurate. As it is impossible, on account of individual idiosyncrasies and the uncertainty of the final reaction, definitely to assign any dose and as the results are so inaccurate, we feel that until some more satisfactory means of standardizing cannabis indica has been suggested, no physiologic assay process should be introduced into the Pharmacopeia.

Ergot.—Another drug which urgently requires some method of standardization is ergot. The cock's-comb test, as has been shown by Edmunds and in our own experiments, is unreliable. Two other methods have been suggested for this purpose: one based on the activity of the drug on uterine muscle, and the other based on its effects on the circulation. Each of these methods requires either that the sample be compared to a standard preparation, or else that a considerable series of animals be employed for each test, and the average taken of the series. Against the method of comparing the effects with a standard preparation rises the almost insuperable obstacle of keeping a standard preparation on hand without deterioration. Our opposition, expressed in connection with digitalis, to any method of test for any drug which requires comparison with a standard preparation which cannot be made by any competent pharmaceutical chemist, applies still more strongly to ergot. The method of taking the average of a series makes the assay so expensive and so tedious as practically to preclude its use by any but the largest wholesale manufacturers. Moreover, there is at least a reason to hope that before the next edition of the Pharmacopeia appears, a satisfactory chemical test for this drug will have been devised. For these reasons we do not recommend the introduction of a physiologic standard for ergot.

Thyroid.—Thyroid gland does not in our opinion require physiologic standardization, as the work of Hunt has shown that the percentage of combined iodin is an accurate indicator of the quality of the drug, and we believe that wherever a chemical test is equally available it should be given the preference to a physiologic one.

Veratrum.—The one physiologic test for veratrum which, so far as our reading goes, has been suggested, is the quantity required to kill. As this substance contains a number of alkaloids which are quite different in their effect, we do not believe that such a test is of any great practical importance. Moreover, as the active principle of this drug is alkaloidal in nature, it would appear to us that a method of chemical standardization could be devised. We would call attention to the fact, however, that the total percentage of alkaloid is no indication of physiologic power of the drug, for, as has been shown by Eden,[2] the protoveratrin, which constitutes a comparatively small percentage of the alkaloidal content of the plant, is so much more powerful than any other principle that it practically dominates the action of the drug.

Aconite.—Although the Pharmacopeia directs that aconite should contain 0.5 per cent. of aconitin, yet the method described gives rather the total alkaloids of the drugs. The percentage of total alkaloids is by no means an accurate criterion of the activity of the specimen, since there are present in the crude drug at least two other alkaloids besides aconitin, which are greatly inferior in potency; therefore, the drug might assay comparatively high in alkaloid, but be of feeble physiologic power. We would recommend, therefore, the introduction of a physiologic standard for this remedy. E. R. Squibb suggested a method of physiologic standardization based on the power of aconite to cause tingling of the lips. A definite amount of the drug is rubbed with 1 c.c. of water and held in the mouth for one minute. This should cause a tingling of the lips, coming on in about twenty minutes and lasting about an hour. This test is unreliable, both because of the difference in susceptibility of different persons and because of the great variations in the susceptibility of the same individual on different days. The standard which we would suggest is based on the amount required to kill a given weight of animal within a period of twenty-four hours. The fact that guinea-pigs may be readily obtained and are so easily handled makes them the most available animals for this purpose.

We suggest the following standard:

> Aconite should be of such strength that it requires not less than 0.4 mg. or more than 0.5 mg. per gram of body weight to kill a guinea-pig when tested in the following manner:
>
> From the specimen to be tested, a fluidextract is made according to the official process. Four guinea-pigs are then carefully weighed and into two of them is injected beneath the skin of the abdomen an equivalent of 0.0004 gm. of aconite for each gram of the body weight, and into the other two is injected 0.0005 gm. per gram of body weight. If at the end of twelve hours the first two survive and the second two are dead, the drug is of satisfactory quality. If the first two die, it is too strong; if the second two survive, it is too weak. If one of either pair lives and the other dies, the test must be repeated.

Digitalis Group.—Apocynum, convallaria, digitalis, scilla and strophanthus are placed together by pharmacologists, as they have much the same physiologic actions. As there is no

* Read before Scientific Section of the Philadelphia Branch of the American Pharmaceutical Association, Nov. 10, 1910.

1. Brunning: Ztschr. f. exper. Pharm. u. Therap., 1905, I, 80.

2. Eden: Arch. f. exper. Path., xxix, 40.

satisfactory method of chemical standardization for any of these drugs, the committee feels that the adoption of a physiologic method of assay would be advisable.

Three types of test have been suggested for the standardization of these drugs: (1) the dose required to kill a warm-blooded animal, as the guinea-pig; (2) the amount required to produce the arrest of the heart of a frog in a given period of time; (3) the degree of elevation of blood-pressure in a warm-blooded animal. The last of these methods may be immediately excluded as being the least reliable of the three, and also the most complex technically. Concerning the choice between the first two methods, while recognizing that there are valid arguments in favor of each, we are inclined to prefer the test on the guinea-pig. It is true that in the study of Edmunds and Hale[3] the frog test appeared to be somewhat more accurate, showing in no case an error of more than 10 per cent. There are, however, two serious objections to the frog method as an official process of assay. In all of these frog tests a time limit has been given, and the various time limits have ranged from one to twenty-four hours. According to the author just quoted, the fatal dose for twelve hours is about three-fourths of that for one hour. It is evident that the difference between the dose required to kill in one hour and that required to kill in twelve hours is largely a question of the rapidity of absorption. Now it may easily be that a preparation which is highly active may, for some reason, be comparatively slowly absorbed, so that the one-hour test is not only of activity of the drug, but of absorbability, which manifestly is not the purpose of the assay.

Another objection which seems to us almost insurmountable is the great variation in the susceptibility of frogs. In the first place, it is a well-recognized fact that frogs of different species vary widely in their susceptibility to members of the digitalis group. It would, therefore, be essential to use always frogs of one species. This offers no trouble if the tests were to be carried out only in one part of the United States, but the species of frogs which are common in Maine are not found at all in California. The most widely distributed frog, the *Rana pipiens*, does not occur west of the Sierra Nevada. Not only do frogs of different species show variations in their susceptibility, but it is recognized that the season of the year influences this. According to a statement made by Dr. Hale in a discussion of this subject before the Philadelphia Branch of the American Pharmaceutical Association, this difference is due simply to the effects of temperature and can be overcome by working always in a room of certain temperature. We are not familiar, however, with any experimental proof of this statement, and it seems, *a priori*, improbable. Moreover, there is reason to believe that even the same species of frog varies according to the locality from which it is obtained. Dr. Donaldson of the Wistar Institute of Anatomy has found a marked difference in the relation of total body weight to the weight of the central nervous system in frogs of the same species, obtained from different parts of the country. While this does not, of course, absolutely prove that there would be a difference in the susceptibility to digitalis, it necessitates at least a careful study of the comparative susceptibility of frogs of the same species from different regions, before it can be taken for granted that they will be the same.

The only method of overcoming these obstacles would seem to be by comparing the preparation tested with a standard preparation. We are convinced that such a method of standardization is undesirable for pharmacopeial purposes. It would necessitate a distribution either by the government or the Pharmacopeial Convention of a standard preparation, and although the experiments of Houghton indicate that tincture of strophanthus might be available for this purpose, such a standard would have to be tested almost continuously by the distributors and given out at comparatively short intervals. Chance deterioration in the standard might easily result in flooding the market with inferior preparations before the fact was discovered and corrected.

3. Edmunds and Hale: Hyg. Lab. Bull. No. 48.

Guinea-pigs, on the other hand, are obtainable in all parts of the world. They are already used for standardization of various remedies, and their susceptibility to digitalis, so far as known, does not vary under ordinary conditions. Temperature, food, season, weight and sex do not influence their reaction. We therefore recommend the use of guinea-pigs for the determination of the physiologic activity of drugs of this group. As the methods of assay for all the members of this group are the same, we shall describe the test as applied to digitalis only.

> Digitalis should be of such strength that when tested in the following manner it shall require not less than 0.35 mg. or more than 0.40 mg. per gram of body weight to kill a guinea-pig in twelve hours.
>
> Method of Assay: From the sample to be tested a tincture shall be made according to the official process; four guinea-pigs are then carefully weighed, and into two of them an amount of the tincture corresponding to 0.35 mg. per grain of body weight is injected beneath the skin of the abdomen and into the other two a uantity equivalent to 0.40 mg. is injected. If both of the first pair survive and both of the last pair die, the drug is of satisfactory quality. If, however, both of the first pair die, the sample is too strong, or, if both of the second pair survive, too weak. If, of either pair, one survives and one dies, the test should be repeated.

Suprarenal.—If suprarenal glands remain official in the next revision of the Pharmacopeia, we believe that there should be some standard of strength introduced. As at present there is no chemical assay available, and as the physiologic test is one of the simplest of all pharmacologic experiments, we recommend the introduction of the following method for the physiologic assay of suprarenal glands.

> Suprarenal gland should be of such strength that 1 gm. injected intravenously into a dog shall produce a rise of mean blood-pressure within 10 mm. of that produced in the same animal by a dose of 0.001 gm. of the pure active principle when tested in the following manner:
>
> Method of Assay: A dog weighing between 5 and 15 kilograms is anesthetized by injecting hypodermically 0.08 gm. of morphin sulphate for each kilo of body weight, supplemented with the use of such quantity of ether as shall be necessary to prevent pain. One of the larger arteries, as the femoral or carotid, is then connected with a mercury manometer and the animal allowed to come from under the influence of the ether. No experiments should be begun until at least ten minutes have intervened after the withdrawal of the ether. At the end of this period, the normal pressure should be recorded for a period of at least ten minutes, and then a dose of 0.001 mg. of pure active principle for each kilo of body weight is injected intravenously and the blood-pressure observed for at least three minutes. At a period of not less than twenty minutes after the first injection, a dose of 1 mg. of the sample to be tested is injected in the same manner and the pressure observed again for ten minutes. Ten minutes after the injection of this sample a second dose of the pure active principle is to be injected. The elevation of the blood-pressure at the highest point reached after each injection above the pressure at the time the injection was made is then measured. The rise of blood-pressure which was produced by the second injection should be within 10 mm. of the average of the first and third injections.

MRS. PRICE'S CANNING COMPOUND

When the federal Food and Drugs Act went into effect, the use of certain chemical preservatives which had been proved injurious was prohibited in food-stuffs that entered into interstate commerce. One of these preservatives was boric acid. As the harmfulness of this chemical became generally known, housewives and others who had been in the habit of using it for preservative purposes abandoned it. It was then that unscrupulous exploiters of chemical preservatives took a leaf out of the note-book of "patent medicine" fakers and put on the market, under fanciful names, preserving compounds composed largely of boric acid, but giving no indication of the presence of this chemical.

Mrs. Price's Canning Compound is sold on the claim that it will "prevent canned fruits and vegetables from souring and spoiling" and that it "may be used in canning all kinds of fruits" and "in making catsup, sweet pickles or anything that is liable to ferment." The Kansas State Board of Health has published at different times the results of two independent analyses of this "compound." These indicated that the stuff varied in composition. In view of this fact and because inquiries have been received, another analysis was made of Mrs. Price's Canning Compound, in the Association laboratory. The report of the Association's chemists is as follows:

"Mrs. Price's Canning Compound, manufactured by the Price Compound Company, Minneapolis, Minn., as received in the Association laboratory, was contained in an envelope bearing the name of the preparation, the name and address of the manufacturer and directions for its use.

"The envelope contained about 30 gm. of a white powder, soluble in water, possessing a salty taste and having an odor of benzoic acid. Qualitative tests indicated the presence of borate, chlorid, benzoate and sodium. Further experiments and the quantitative estimations indicated that the constituents found existed as boric acid, sodium chlorid and benzoic acid (possibly in part as benzoate) corresponding to the following amounts:

Boric acid, 94.74 per cent.
Sodium chlorid, 4.71 per cent.
Benzoic acid (calculated from total benzoate), 0.40 per cent.

"While the first analysis (Bulletin Kansas State Board of Health, October, 1909, p. 267) showed that the preparation consisted entirely of commercial boric acid, the second examination (Bulletin Kansas State Board of Health, November, 1909, p. 282) showed that about 6 per cent. of the boric acid had been replaced by sodium chlorid. The present analysis shows that the composition has been again altered by the addition of a small amount of benzoic acid. For all practical purposes, these changes are unessential. The variability is evidently the result of carelessness in the manufacture or it is made with the idea of misleading and confusing."

The housewife who uses this mixture does so, of course, not knowing that the chemical she is putting into her foods has been declared injurious as a food preservative by the federal government. Neither does she realize that she is paying for what is essentially boric acid, worth 15 cents a pound, at the rate of $1.60 a pound.

Correspondence

The Philadelphia Idea as to Medical Teaching

To the Editor:—On several occasions within the last few years statements have been made in medical journals, here and abroad, to the effect that the medical schools of this country are not equipped with satisfactory opportunities for clinical teaching. Last spring, the president of Cornell University, when delivering an address which should have been carefully prepared, made the extraordinary statement that no medical school in this country, with the exception of Johns Hopkins, had a hospital completely under its control, and therefore adequately used for teaching purposes.

In the London *Lancet*, Feb. 4, 1911, its American correspondent, in describing a proposed amalgamation between the medical department of Columbia University and the Presbyterian Hospital refers to this plan as the "Johns Hopkins idea." It goes without saying that those of us who know much of medical teaching hold the Johns Hopkins Medical Department in the highest esteem, but it is only proper that the facts be correctly stated. The object of this communication is to point out the fact (not so generally known as it should be) that every medical school in Philadelphia has as a part of its equipment a hospital, which exists, not as an affiliated institution, but as part and parcel of its teaching plant. As long ago as 1824, when Jefferson Medical College was founded, it established an out-patient service in order to give its students the advantage of clinical material under its own control; and in 1841, the medical department of the University of Pennsylvania did likewise. In 1873, Jefferson Medical College inaugurated its plans for a complete hospital, and this institution was opened Sept. 17, 1877, containing 160 beds. At about the same time the Hospital of the University of Pennsylvania went into active service. Three years ago, the new Jefferson Medical College Hospital, costing $1,250,000, was completed, containing 300 beds, and from time to time the university hospital has been considerably enlarged. As soon as it was started in 1881 the Medico-Chirurgical College established an out-patient department, and a few years afterward erected a hospital. The Woman's Medical College of Pennsylvania also has a hospital known as the Hospital of the Woman's Medical College. The Hahnemann Medical College also has its own hospital, and the medical department of Temple University, the youngest of the Philadelphia schools, has under its direct control the Samaritan Hospital.

It is interesting to note in this connection that all of these hospitals are under the control of the same boards of trustees that govern the institutions in which the students matriculate for the purpose of studying medicine, and in the Jefferson Medical College, in the University Medical Department and in the Medico-Chirurgical College members of the faculty who teach in the practical branches are by virtue of their professorial chairs in actual control of and on duty in the wards. In other words, to be elected professor of medicine, therapeutics, or surgery in Jefferson Medical College means that a man is thereby elected physician or surgeon to the Jefferson Medical College Hospital. The relationship is therefore a matter of absolute control and not of friendly affiliation, and by this means only can satisfactory medical teaching in a medical school be accomplished. If, therefore, the principle of having an active hospital as a part of a thoroughly equipped medical school is to be given a specific name it should be called the "Jefferson Medical College idea" or the "Philadelphia idea" and not the "Johns Hopkins idea."

As a matter of fact, barring the Johns Hopkins Hospital; there is, I believe, no medical school in the United States so thoroughly equipped with hospital facilities under its own control as the Philadelphia medical teaching institutions, all of which have their hospitals, with exception of Temple College, side by side with the medical school buildings. All of these institutions have in addition the opportunity of teaching their students in large hospitals which are thrown open to all the schools, such as the Pennsylvania and Philadelphia Hospitals, for example. In other words, the Philadelphia schools have all the benefits of unattached hospitals possessed by institutions elsewhere in addition to the ownership and control of their own hospitals.

As a matter of historical fact, Jefferson Medical College was the first medical institution in America to establish clinical teaching, and all its sister institutions in Philadelphia, with which it dwells in the most cordial friendship, have followed its example.

H. A. HARE, M.D., Philadelphia.
Professor of Therapeutics, and Physician to the Jefferson Medical College Hospital.

Card System of Dairy Inspection

To the Editor:—I notice with much interest an editorial in THE JOURNAL, Jan. 14, 1911, p. 124, relative to the score-card system of dairy inspection, which you commend, but say that it needs "further elaboration." I shall be much interested in seeing your comments on the card and getting your ideas on the same. Possibly a few words relative to the history and development of the standard card now in use may be helpful to you and of interest. The first score-card which I ever saw allowed 500 points and handed out blocks of twenty-five to thirty-five for different items. It soon became evident that such a card, as you say, needed "further elaboration;" that if twenty-five points were allowed, for instance, for "Cleanliness of the Stable," there would be a chance for very wide differences in the score; so that from time to time we have revised

the score-card until we have evolved the one which we recommend, and every revision has been along the line of this "further elaboration." The one which we are using now has the endorsement of the National Association of Official Dairy Instructors, but when we print more of them two items at least will receive, doubtless, further elaboration. The eight points allowed for "Cleanliness of Cows" will be subdivided into minor items, as will be the six points for "Condition of Stable," "Air at Milking Time," giving a part of the allowance for "Clean Bedding," a part for "Freedom from Dust," and a part for "Freedom from Odors." Our experience has shown us that the more the card is elaborated the better it is, and the present card is the result of years of experience and development along that line.

GEORGE M. WHITAKER,
In Charge, Market Milk Section, Dairy Division.
U. S. Dept. Agriculture, Bureau of Animal Industry.

[COMMENT:—Editorial reference to this subject is made in this issue.—ED.]

Peccavimus!

To the Editor:—I have been frequently amused by the quality of medical erudition displayed by the daily and weekly newspapers; especially by the "Clippings from Lay Exchanges" in THE JOURNAL. But are we not the goat of the Roman fable, standing on the roof of a house and ridiculing the wolf passing below, when our great JOURNAL, the English of which is so polished and the proofreading so nearly perfect, prints (Feb. 11, 1911, p. 443) Latin like this: "M. fiat pilulam"? Should the author of such Latin take up his long-neglected "Commentarii Cæsaris de Bello Gallico" and find such a distortion of case-endings he would certainly be puzzled if he made an effort to convert it into English.

CHARLES H. HIGGINS, Zanesville, O.

[COMMENT:—We wish here to acknowledge other letters on this subject and to admit that our correspondent's severity is not misplaced. The error cited is, of course, a shocking one. We desire, however, to exculpate completely Dr. Bolenius, who furnished the prescriptions. We can only plead guilty of an inexplicable blunder, and throw ourselves on the mercy of the court. Those of our readers who have had any experience with the treachery of types will perhaps be lenient. If Argus had had brains to match his hundred eyes, he would have been just the man we want on our staff. Evidently, however, we have the next best thing— a corps of readers whose collective erudition and interest in maintaining the standard of THE JOURNAL are so great that any oversight of ours is sure to be brought to our attention in the next mail.—ED.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MARSDEN'S PASTE

To the Editor:—Who was the originator of Marsden's paste? Who is or was Marsden? Please give the percentage of epitheliomas cured by it.

I have had excellent success in one case of epithelioma of the bridge of the nose and toward the inner canthus of the left eye with this paste. But a man of 80 presented himself with an extended growth reaching within quarter of an inch of the margin of the lower eyelid, and I have put him off, hardly daring to do anything. Any suggestion will be thankfully received. If Marsden's paste is a good treatment, why is it not emphasized more?

A. I. LOVELL, M.D., Graysville, Tenn.

ANSWER.—Alexander Marsden originated this paste. He was a London surgeon who had a large experience in cancer in the London Cancer Hospital. His paste was introduced in an article, "A New and Successful Mode of Treating Cancer," published in London in 1867. It has always been highly regarded and widely used by a few men, but, like all other caustic methods of treating epitheliomas, it has suffered from the prejudice against caustics. It is a valuable method of treatment in properly selected cases. Its use, with that of other caustics, is considered in detail in THE JOURNAL, Nov. 5, 1910, p. 1611, in the article by Dr. W. A. Pusey on "Treatment of Malignant Growths of the Skin from a Dermatologist's Standpoint."

No reliable statistics are possible as to the percentage of cures obtained with it. Success depends on its thorough application in properly selected cases—that is, in cases in which the growth can be entirely destroyed. Daniel Lewis says that 99 per cent. of epitheliomas of the skin are curable if taken in time.

SPENGLER'S IMMUNE BODIES—I K

To the Editor:—1. What is the Carl Spengler immune blood or antitoxin? 2. Where can it be obtained? 3. What results have been obtained from its use in tuberculosis?

JOSEPH PESTAL, M.D., Pearce, Ariz.

ANSWER.—1. Carl Spengler's immune bodies—I K—are derived from the red blood-corpuscles of the blood of animals immunized against the tubercle bacillus. The material is said to be extracted in such a way that the immune bodies are removed in a state of comparative purity, free from albumin and blood-coloring matter. The theory of Spengler, on which the preparation is based, is that the red blood-corpuscles are the source of the immunizing substance produced by the organism in tuberculosis.

2. The preparation is made by Spengler, of Davos, Switzerland, and is put on the market by Kalle & Co., Riebrich a. Rh., Germany. It has been used to a considerable extent in Germany, but, as we understand, it cannot be imported into this country legally because the firm which manufactures it has not a license for the manufacture of serums, antitoxins, tuberculins, etc., which is required by the United States government before such products can be imported into this country. A list of licensed manufacturers appeared in *Public Health Reports*, Feb. 10, 1911.

3. Many favorable reports of the action of this preparation in tuberculosis have appeared in the literature, while other clinicians have found it of little or no value. Further experience will be necessary before a positive opinion can be expressed.

TREATMENT OF GEOGRAPHICAL TONGUE

To the Editor:—Can you give me a remedy for a disease which is commonly known as "geographical tongue?" This is mentioned in Stelwagon's "Diseases of the Skin," on pp. 1086-89, under the heading of "Transitory Benign Plaques of the Tongue," and is given the following names: exfoliatio areata linguæ, pityriasis linguæ, wandering rash, ringworm-like patches of the tongue, Muller's superficial glossitis, etc.

I have under treatment a chronic case which has existed for about ten years; the patient is over 65 years of age and has no syphilitic taint. I have tried a number of antiseptics and other remedies, but I find them of very little use and would be grateful if you can suggest some remedy. J. F. NAGLE, M.D., New York City.

ANSWER.—There is no satisfactory treatment for geographical tongue. Its etiology is not known, so the treatment is entirely empirical. The use of bland antiseptic mouth washes, such as a solution of hydrogen peroxid, and painting with a bland varnish, such as tincture of myrrh, are recommended. A few paintings with tincture of iodin at intervals of at least three or four days may serve to remove it either by stimulating the surface or by acting as an antiseptic. The condition is rare in the old and a careful differential diagnosis should be made from leukoplakia, in which stimulating remedies like tincture of iodin are not indicated.

USE OF MERCURY CYANID OR OXYCYANID AS AN ANTISEPTIC

To the Editor:—Can you give me any references to literature concerning cyanid or oxycyanid of mercury as an antiseptic?

C. S. OAKMAN, Detroit.

ANSWER.—Cyanid and oxycyanid of mercury are described in New and Nonofficial Remedies, pages 126 and 127, and in the British Pharmaceutical Codex. These authorities state that these salts have an antiseptic and disinfectant power similar to mercuric chlorid. The bactericidal value of mercuric oxycyanid is given by Lehmann (*Oesterr. Ztg.*, 1903, 851; abstracted in the Proceedings of the American Pharmaceutical Association, 1904, lii, 795) as equal to that of mercuric chlorid. Doubt is thrown on the antiseptic value of mercuric oxycyanid by K. Holdermann, who cites the experiments of B. Köhler in a thesis published at Marburg in 1905 (*Arch. d. Pharm.*, 243, No. 9, 1905, 673; abstracted in the Proceedings of the American Pharmaceutical Association, 1906, liv, 828).

MEDICAL MISSIONARY SERVICE

To the Editor:—Whom may one address to apply for foreign missionary medical service? F. S. MARNELL, Nebraska City, Neb.

ANSWER.—The first and most natural procedure for a person who wishes to take up foreign medical missionary work is to communicate with the foreign board or society of the particular denomination in which he or she is already a member or regular attendant. There is, however, what might be called a clearing house for all denominations, and the secretary of this body recently sent an interesting letter to THE JOURNAL, which will be found in the issue of Dec. 3, 1910, page 1997. Mr. W. B. Smith, 125 East Twenty-Seventh Street, New York City, is candidate secretary of the Student Volunteer Movement for Foreign Missions.

REMOVAL OF ADHESIVE PLASTER

To the Editor:—Dr. Beardsley, in THE JOURNAL, January 28, suggests the use of oil of wintergreen in removing adhesive plaster. A cheaper and often more accessible article is ether.

To remove the plaster raise from one-eighth to one-fourth inch of one end of the adhesive strap before applying the ether, then, with a medicine dropper, apply ether to the skin a drop at a time, and the plaster will almost fall off by its own weight. It is necessary to be careful not to separate the cloth from the adhesive material in starting or else the ether will follow this plane, removing the cloth only. J. SCOTT BROWN, M.D., Burnett, Wis.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Feb. 18, 1911.

Millikin, John D., D.S., granted leave of absence for two months, to take effect on arrival at San Francisco.

Moncrief, William H., captain, assignment to duty at Fort Riley, Kan., revoked, and instead ordered to Fort Leavenworth, Kan.

Graham, George D., D.S., orders so amended as to relieve him from duty at Fort Shafter, H. T., to take effect on the arrival at Honolulu of the transport leaving San Francisco about July 5, and to direct him to proceed on that transport to Manila, P. I., and report for assignment to duty.

Coffin, Jacob M., captain, granted three months' leave of absence, to take effect on his relief from duty in the Philippines division; permission to return to the United States via Europe.

Wing, F. F., D.S., reports his arrival at Fort Des Moines, Iowa, for temporary duty.

Pinkston, O. W., captain, reports in field with 4th Cavalry, camp at Washington Park, El Paso, Texas.

Millikin, John D., D.S., relieved from duty in the Philippines division and will proceed from Manila, P. I., about August 15, 1911, to San Francisco for orders.

Page, Henry, major, granted four months' leave of absence, to take effect on his relief from duty in the Philippines division, with permission to go beyond the seas.

McLaughlin, William F., M.R.C., granted leave of absence for one month and four days.

Blair, Faris M., M.R.C., granted twenty-three days' leave of absence.

Underwood, Gordon B., M.R.C., granted twenty-three days' leave of absence.

Delacroix, A. C., M.R.C., reported for temporary duty at Fort Columbia, Wash.; left Boise Barracks, Idaho, February 8.

Bierbower, H. C., M.R.C., reports arrival at Columbus, N. Mex., with Troop C, 4th Cavalry.

Maloney, James E., M.R.C., ordered to proceed to Fort Lawton, Wash., for temporary duty.

Campbell, George F., M.R.C., relieved from treatment at the Army and Navy General Hospital, Hot Springs, Ark., and will return to station, Fort Wingate, N. Mex.

Scott, Harold O., D.S., orders for annulment of contract revoked. Will proceed, at the expiration of his leave of absence, to the Army General Hospital, San Francisco, for duty. Dental Surgeon Scott will stand relieved from duty at that hospital and will proceed to the Philippine Islands for duty on transport sailing from San Francisco about April 5, 1911.

Moncrief, William H., captain, granted thirty days' leave of absence.

Carr, William B., lieut., ordered to proceed from Fort Monroe, Va., to Fort Sam Houston, Texas, for temporary duty.

Delacroix, relieved from duty at Boise Barracks, Idaho, and assigned to duty at Fort Columbia, Wash.

Roberts, William M., major, ordered to Fort Oglethorpe, Ga., for temporary duty.

Bourke, James, captain, directed to proceed to Fort Crockett, Texas, for duty about April 10, insted of March 10, 1911.

Woodall, William P., captain, honorably discharged from the service of the U. S.

Williamson, L. P., lieut., assigned to duty with Co. I, Signal Corps, for field service in Arizona.

Medical Corps, U. S. Navy

Changes during the week ended Feb. 18, 1911.

Farwell, W. G., P. A. surgeon, detached from the naval station, Guantanamo, Cuba, and ordered to the *South Carolina*.

Riddick, W. J., asst.-surgeon, detached from the *South Carolina* and ordered to the naval station, Guantanamo, Cuba.

Hibbett, C. T., medical director, detached from the navy yard, Norfolk, Va., and ordered to command the naval hospital, Norfolk, Va.

Du Bose, W. R., medical director, detached from command of the naval hospital, Norfolk, Va., and ordered to duty as member of the naval examining and naval medical examining boards, Washington, D. C.

U. S. Public Health and Marine-Hospital Service

Changes for the seven days ended Feb. 15, 1911.

Guiteras, G. M., surgeon, granted nine days' leave of absence from Feb. 1, 1911, on account of sickness.

Young, G. B., surgeon, detailed to represent the service at the annual conference on medical education and legislation of the American Medical Association, at Chicago, March 1-3, 1911.

McLaughlin, A. J., P. A. surgeon, directed to proceed to Erie, via Harrisburg, Pa., on special temporary duty.

Warren, B. S., P. A. surgeon, granted seven days' leave of absence from Jan. 4, 1911.

Manning, H. M., P. A. surgeon, directed to proceed to the New Orleans quarantine station, Quarantine, La., and report to the medical officer in command, for duty and assignment to quarters.

Pettyjohn, Joseph, P. A. surgeon, directed to proceed to Boston and report to the medical officer in command for duty and assignment to quarters.

Lyon, R. H., asst.-surgeon, directed to proceed to Ellis Island, N. Y., and report to the chief medical officer for duty.

Stiles, C. W., professor of zoology, detailed to attend a conference on the hook-worm disease to be held at Atlanta, Ga., Feb. 14-15, 1911.

Hunt, Reid, professor of pharmacology, detailed to attend the meeting of the Council on Pharmacy and Chemistry of the American Medical Association, at Chicago, Feb. 17, 1911.

Thompson, W. R. P., A. A. surgeon, directed to proceed to Salina Cruz, Mexico, on special temporary duty.

Walkley, W. S., A. A. surgeon, granted seven days' leave of absence from Feb. 10, 1911.

Wood, J. E., A. A. surgeon, granted fifteen days' leave of absence from Feb. 9, 1911.

Wright, F. T., A. A. surgeon, granted thirty days' leave of absence from Feb. 6, 1911.

Motter, M. G., technical assistant, detailed to represent the service at the meeting of the National Confederation of State Medical Examining and Licensing Boards, at Chicago, Feb. 28, 1911.

Wilbert, M. I., technical assistant, detailed to attend the meeting of the Council on Pharmacy and Chemistry of the American Medical Association, at Chicago, Feb. 17, 1911.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

Senator Owen Introduces New Health Bill

The Hon. Robert L. Owen has introduced the following bill as a substitute for the bill introduced last year providing for a National Department of Health:

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, That there shall be at the seat of government an executive department to be known as the Department of Health, and a Secretary of Health, who shall be the head thereof, who shall be appointed by the President, by and with the advice and consent of the Senate, who shall receive a salary of $12,000 per annum, and whose term and tenure of office shall be like that of the heads of the other executive departments; and Section 158 of the Revised Statutes is hereby amended to include such department, and the provisions of Title 4 of the Revised Statutes, including all amendments thereto, are hereby made applicable to said department. The said secretary shall cause a seal of office to be made for the said department, of such device as the President shall approve, and judicial notice shall be taken of said seal.

SEC. 2. That there shall be in said department an assistant to the secretary, known and designated as director-general, who shall be a competent physician and a skilled sanitarian, to be appointed by the President, by and with the advice and consent of the Senate, who shall receive a salary of $7,500 per annum, and whose term and tenure of office shall be for six years. He shall perform such duties as shall be prescribed by the secretary or required by law. There shall also be one chief clerk, and a disbursing clerk and such other clerical assistants as may from time to time be authorized by Congress. And the auditor for the state and other departments shall receive and examine all accounts of salaries and incidental expenses of the office of the Secretary of Health and of all bureaus and offices under his direction, all accounts relating to the Public Health and Marine-Hospital Service, the Bureau of Chemistry, the Bureau of Vital Statistics, the Bureau of Meat Inspection, or other bureaus which may be

transferred to the Department of Health by executive order, as is provided for by this act, and to all other business within the jurisdiction of the Department of Health, and shall certify the balance arising thereon to the Division of Bookkeeping and Warrants, and send forthwith a copy of each certificate to the Secretary of Health.

SEC. 3. That it shall be the province and duty of said department to foster and promote, by inquiries or otherwise, and develop all matters pertaining to the public health; to collect and diffuse information relating to or affecting the public health; to advise the several departments of the government, the executives of the several states and territories, and all the health authorities of the several states and territories and the District of Columbia and the dependencies on all matters pertaining to the public health, when in his opinion such advice may tend to the preservation and improvement of the health of the people, to secure the best sanitary condition of vessels, their cargoes, passengers, and crews, from foreign and domestic ports; to prevent the introduction of contagious and infectious diseases into the United States and their spread from any state or territory or the District of Columbia; on request of the executive of any state or territory or the District of Columbia to cooperate with and aid state, territorial, district, and municipal health authorities in the execution and enforcement of such needful rules and regulations as are deemed by him necessary to suppress or prevent the spread of contagious and infectious diseases; and, in general, the Department of Health shall be the medium through which the government shall adopt such measures or take such action as will most effectually protect and promote the health of the people of the United States and its dependencies.

SEC. 4. That the office of the surgeon-general of the Public Health and Marine-Hospital Service and the corps of officers and personnel of the Public Health and Marine-Hospital Service, now and heretofore under the jurisdiction of the department of the Treasury, be, and the same hereby are, transferred from the Department of the Treasury to the Department of Health, and the same hereafter shall remain under the jurisdiction and supervision of the last-named department; and that the chief of and the Bureau of Vital Statistics of the Census Office, and all that pertains to the same, be, and the same hereby are, transferred from the Department of Commerce and Labor to the Department of Health and henceforth shall remain under the jurisdiction and supervision of the latter; and the following-named bureaus of the Department of Agriculture: that part of the Bureau of Chemistry charged with the investigation of the adulteration of foods, drugs, and liquors and engaged in the enforcement of the Act of Congress approved June 30, 1906, the chief of the bureau and all that pertains thereto, and that part of the Bureau of Animal Industry charged with the inspection of live cattle and hogs and carcasses and products thereof which are subjects of interstate and foreign commerce, the chief of the bureau and all of said bureau which pertains thereto, be, and the same hereby are, transferred to the Department of Health, and the same hereafter shall remain under the jurisdiction and supervision of the last-named department.

SEC. 5. That all the duties, powers, authority, and jurisdiction, whether supervisory, appellate, or otherwise, now imposed on the Secretary of the Treasury by acts of Congress relating to the Public Health and Marine-Hospital Service, to the enforcement of quarantine, and for the suppression of epidemic diseases; and now imposed on the Secretary of Commerce and Labor by acts of Congress, relating to the Bureau of Vital Statistics of the Census Office; and now imposed on the Secretary of Agriculture by acts of Congress, relating to that part of the Bureau of Chemistry charged with the investigation of the adulteration of foods, drugs, and liquors and engaged in the enforcement of the aforesaid Act of June 30, 1906, and relating to that part of the Bureau of Animal Industry charged with the inspection of live cattle and hogs and carcasses and products thereof, shall be, and the same hereby are, transferred to and imposed and conferred on the Secretary of Health.

SEC. 6. That the Secretary of Health is hereby given power and authority to rearrange the work of the bureaus and offices confided to said department, and to consolidate the statistical bureaus and offices, and the Secretary of Health shall also have authority to call on other departments of the government for statistical information so obtained in such manner as to him may seem wise. That the official records and papers now on file in and pertaining exclusively to the business of any bureau, office, department, or branch of the public service in this act transferred to the Department of Health, together with the furniture now in use in such bureau, office, or department, or branch of the public service, shall be, and hereby are, transferred to the Department of Health.

SEC. 7. That the President be, and hereby is, authorized by order in writing, to transfer at any time the whole or part of any office, bureau, division, or other branch of the public service engaged in statistical or scientific work which relates to and is germane to the public health to the Department of Health, except those of the Department of War and the Navy, and in every such case the duties and authority performed by and conferred by law on such office, bureau, division, or other branch of the public service, or part thereof, which is transferred, and all the power and authority conferred by law, both supervisory and appellate, on the department from which such transfer is made, or the secretary thereof, in relation to said office, bureau, division, or other branch of the public service, or the part thereof so transferred, shall immediately, when such transfer is ordered by the President, be fully conferred on and vested in the Department of Health or the secretary thereof, as the case may be, as to the whole or part of such office, bureau, division, or any branch of the public service so transferred.

SEC. 8. That there shall be an advisory board for the Department of Health. Said board shall consist of three competent experts, to be detailed from the Army, Navy, and the Bureau of Animal Industry by the Surgeon-General of the Army, the Surgeon-General of the Navy, and the Secretary of Agriculture, and one versed in law to be detailed from the Department of Justice by the Attorney-General, respectively (which experts, together with the chiefs of the bureaus of the Department of Health, shall be *ex officio* members of the board, and serve without additional compensation), and eight other members who shall be appointed by the Secretary of Health, who shall be competent experts, and not in the regular employment of the government. The said eight members shall each receive compensation of $20 per diem while serving in conference, as aforesaid, together with allowance for actual and necessary traveling expenses and hotel expenses while in conference. The term of service of the eight members of said board not in the regular employment of the government, first appointed, shall be so arranged that two of said members shall retire each year, and subsequent appointments shall be for six years. Appointments to fill vacancies occurring in a manner other than as above provided shall be made for the unexpired term of the member whose place has become vacant. The duties of said board shall be to consult with the secretary relative to investigations to be inaugurated in the department and the methods of conducting the same, to formulate, for the secretary's approval, the rules and regulations to be observed in maritime and interstate quarantine, to formulate opinions on subjects referred to it by the secretary, and to participate in conferences held by the Secretary of Health with the health authorities of states and territories and the District of Columbia; and so much of the act approved July 1, 1902, which relates to an advisory board for the Hygienic Laboratory is hereby repealed.

SEC. 9. That the Secretary of Health shall call an annual conference of the health authorities of all the states and territories and the District of Columbia, said conference to be held in the city of Washington, and each of the said states, territories, and the District of Columbia shall be entitled to send one delegate from its health department. And each delegate from said state or territory or the District of Columbia so attending a conference called by the Secretary of Health shall be entitled to receive an allowance for actual and necessary traveling expenses and hotel expenses, not exceeding five days, exclusive of days necessarily spent in travel: *Provided*, That when, in the opinion of the Secretary of Health, the interests of the public health would be promoted by a conference of one or more health authorities of states and territories with himself, he may invite such states and territories as he may deem necessary to send one delegate from each of the health departments to participate in such conference: *And provided further*, That it shall be the duty of the Secretary of Health to call a conference on application of not less than five state or territorial boards of health, and each of said states and territories and the District of Columbia joining in such request shall be entitled to send one delegate.

SEC. 10. That the Secretary of Health, after conference with the advisory board, may cause investigations to be made into the nature, origin, and prevention of contagious and infectious diseases, epidemics, and other diseases, in the

United States and its dependencies, and, if necessary, in foreign countries, and may appoint commissions of experts from the Department of Health or experts not in the regular employment of the government to make such investigation as may in his judgment seem wise.

SEC. 11. That the President is hereby authorized, when requested by the Secretary of Health, and when the same can be done without prejudice to the public service, to detail officers from the several departments of the government for duty under the direction of the Secretary of Health to carry out the provisions of this act, and such officers while so detailed shall receive no additional compensation except for actual and necessary expenses incurred in the performance of such duties.

SEC. 12. That the Secretary of Health shall annually, at the close of the fiscal year, make a report in writing to Congress, giving an account of all money received and disbursed by him and his department in fostering and promoting the public health, and in matters relating thereto. He shall make special reports as he may be required to do by the President, or either house of Congress, or which he himself may deem necessary and urgent.

SEC. 13. That, except as expressly provided for by this act, nothing herein contained shall be construed as limiting or abrogating any function, right, or duty now imposed by law on any existing bureau or part of bureau; but such bureaus and parts of bureaus as are by this act transferred to the Department of Health shall continue, under direction of the Secretary of Health, to have such functions, duties, and rights as they have at the time of such transfer, and such parts of bureaus as are not transferred, in those cases where a part only is transferred, shall continue to have such functions, duties, and rights as they would have had if this act had not been passed.

SEC. 14. That the sum of ———— dollars be, and is hereby, appropriated to carry the provisions of this act into effect.

SEC. 15. That all acts or parts of acts inconsistent with this act are hereby repealed.

SEC. 16. That this act shall take effect on and after July 1, 1911.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Seventh Month—Fourth Weekly Meeting

INFECTIONS OCCURRING IN SURGICAL DISEASES AND CONDITIONS

ERYSIPELAS

ETIOLOGY: *Streptococcus erysipelatis*, relation to *Streptococcus pyogenes*. Season, age, sex, previous attacks, traumatism, local abrasions. Infection may be (1) local (ectogenous), (2) lymphogenous, or (3) hematogenous.

PATHOLOGY: Changes in the skin and subcutaneous tissues. Extension to deeper structures, meninges, etc. Changes in endocardium, viscera.

SYMPTOMS: Incubation, duration, prodromata. Invasion; general symptoms, chill, fever, vomiting, pulse, urine, nervous symptoms. Relation of constitutional symptoms to local lesions. Local symptoms; erysipelas erythematosum. Erysipelas vesiculosum, bullosum, pustulosum, gangrenosum. Erysipelas migrans, neonatorum.

TREATMENT: Prophylactic. Antisepsis. Puerperal cases. Reinfection. Diet.*

CONSTITUTIONAL TREATMENT: Medicinal. Serum treatment. Symptomatic treatment.

LOCAL TREATMENT: Phenol, mercuric chlorid, ichthyol. Subcutaneous injections. Strapping.

TETANUS

ETIOLOGY: Bacillus of tetanus, staining and cultural characteristics. Tetanus toxins. Wounds favoring growth of tetanus bacillus. Fourth-of-July tetanus.

SYMPTOMS: Incubation period, duration, prodromata. General symptoms. Condition of wound. "Idiopathic" tetanus.

CLINICAL TYPES: Acute and chronic, tetanus neonatorum, puerperal tetanus, head tetanus.

TREATMENT: Prophylaxis.
Local treatment.
Serum-Therapy: Method of using serum and antitoxins.
Phenol treatment.
Medicinal Treatment.

Monthly Meeting

The Value of Blood-Examination in the Surgical Infections.
The Clinical Diagnosis of Septicemia, of Pyemia.
Prophylaxis of the Surgical Infections.

Extra Weekly Meeting

There can be an extra weekly meeting for the exhibition of cases and for the report of case histories by any of the members.

* Osler's Modern Medicine, iii, 533.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CONNECTICUT: Regular, City Hall, New Haven, March 14-15. Sec., Dr. Charles A. Tuttle; Homeopathic, Grace Hospital, New Haven, March 14. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, Hotel Garde, New Haven, March 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

ILLINOIS: Coliseum Annex, Chicago, March 2-4. Sec., Dr. James A. Egan, Springfield.

MAINE: Portland, March 14-15. Sec., Dr. F. W. Searle, 806 Congress St., Portland.

MASSACHUSETTS: State House, Boston, March 14-16. Sec., Dr. Edwin B. Harvey, Room 159, State House.

WYOMING: Laramie, March 7-9. Sec., Dr. J. B. Tyrrell.

Preliminary Educational Requirement in Indiana

The State Board of Medical Registration and Examination is now enforcing the following outline of minimum preparatory work required which became effective Jan. 1, 1911:

1. Graduation from a regularly commissioned high school of Indiana, or from an equivalent school, such graduation to be evidenced by a certificate or diploma properly signed, or in lieu of such graduation formal documentary evidence satisfactory to the board of a full equivalent of such high school course.

2. In addition to the above, the applicant must submit formal documentary evidence that he has pursued successfully in a recognized college or university in resident courses extending over not less than eighteen calendar months, sufficient work, including the courses outlined below, to entitle him unconditionally to not less than one-half of the total credits required by said institution for the bachelor's degree in the courses of liberal arts or science.

Specific subjects required: For applicants matriculating under these requirements subsequent to June 30, 1912, the following subjects are specifically required to be included in the preparatory work: One year each of chemistry and biology, one of which shall be college work. Two years of college English. The remaining college work is unspecified, save that it must be taken in subjects commonly recognized as belonging in the course of liberal arts or sciences. College courses, professional or semiprofessional in their nature, will not be accepted as meeting in any part the above preliminary requirements of two years of college work.

This board will not offer or accept any examination in lieu of, or as a test of any substitute for the above required college work in liberal arts or sciences. In lieu of such college work there may be offered an equivalent amount of work in a normal or other school whose credits are transferable and acceptable to such recognized college or university as contemplated above. The board may require as evidence of this equivalency a certificate from a college or university acceptable to the board, stating the work is so acceptable by said institution.

Book Notices

PRINCIPLES OF THERAPEUTICS. By A. Manquat, National Correspondent to the Académie de Medicine. Translated by M. Simbad Gabriel, M.D. Cloth. Price, $3 net. Pp. 298. New York: D. Appleton & Co., 1910.

Basing his studies on the scientific advances of the last half century and on clinical experience and exact observations, the author attempts to lay down principles for the guidance of the young physician. He divides remedies into four classes: etiologic or nosocratic, organic and functional, symptomatic, and reparative.

In dealing with the action of medicines a most important distinction is made between toxic and utilizable actions, both of which are included by pharmacologists under the term "physiologic." The author defines toxic action as follows: "The action on the organism of any substance which, in a relatively small dose, is capable of producing reactional, material or functional disorders, remarkable by their intensity, duration or gravity, whether these disorders be immediately appreciable or secondary and more or less slow in development." He says, "It is now obvious how far we are from an equation between toxicity and death."

For actions which do not exceed the limits of normal reactions, he proposes the term "utilizable action," and expresses the belief that this distinction has practical importance of the highest order because experimenters recognizing it will no longer exhaustively investigate the toxic action of a substance; on the contrary, the utilizable actions will interest them. While therapeutics may occasionally avail itself of toxic actions, as in the use of atropin as a mydriatic, the object should be to avoid them as a rule.

Another point to be emphasized is that the physician must always consider the possibility that the toxic action of the drug may cooperate with the action of the poison of the disease and so increase the undesirable effect on the weakened organ. Thus attention is called to the possibility of doing harm by the addition of medicinal to morbid toxicity.

Posology next demands attention and the important principle developed here is the determination of doses according to the action desired and their modification in accordance with the susceptibility of the organism. Protest is made against the use of the largest dose tolerated, to which is opposed the principle of giving the smallest effective dose.

The variations of practice imposed by various external conditions and by the nature of the disease producing the symptoms are discussed in a chapter on medicinal opportunity. There is excellent advice in the chapter entitled "Primum non Nocere," in which is discussed how one may do harm and how one may avoid doing harm. The author conservatively advises not to seek the better when good is at hand. "Where traditional medicine has shown the harmlessness and regularity of action of certain successful practices, it is inopportune to try to do better by some novel doubtful method."

Manquat's opinion of formularies is thus expressed: "It is, therefore, not too much to say that one may kill by conforming to a very good formulary." The formulary can only give the dose appropriate for the ordinary case. While in ordinary cases of pneumonia, digitalis is well borne and does good in relatively large doses, there are other cases, indicated by acceleration of the pulse and embryocardia, in which an ordinary dose may do harm by adding a medicinal poison to the poison of the disease. "How," Manquat asks, "could a formulary intended especially to furnish practical details on the administration of medicines discuss such views?" Again we quote, "What shall we think of tables of maximum doses? As I have myself been guilty of the elaboration of one, I may be severe with them. They are worse than useless, for they may warrant dangerous therapeutic procedures. Almost all posology, based as it is on the theories of physiologic therapeutics, should be revised and reduced."

As a conclusion of this chapter, the author lays down a scheme of questions which the physician should ask himself in difficult cases, in order that he may not neglect any important considerations and may avoid the chance of doing harm. While it would be impracticable to employ these questions in every case, it would be excellent practice for every student and young practitioner to use them until this method becomes habitual with him.

In a separate chapter, Manquat gives his idea of a scientific method in the study and practice of therapeutics. The necessity of exact diagnosis and prognosis as elements in every therapeutic problem is emphasized. The worthlessness of many of the reports of so-called clinical observation is pointed out. Few medicines when first offered to physicians have, according to the author, been subjected to a series of studies calculated to establish their therapeutic value. The author insists that when invited to try a product, practitioners should have scientific reasons for taking it seriously. "In order to end the invasion of worthless remedies and specialties, physicians should, as a matter of principle, refuse to prescribe a medicine until it has fulfilled the conditions of previous studies described above. The task of studying on a patient the effect of a medicinal substance is already difficult enough without undertaking it in the absence of good reasons, even when this substance is offered as a harmless one. Our mission is to take care of patients; it is by no means that of making a reputation or a fortune for manufacturers, no matter how commendable they may be. When they say 'Try it anyhow; it is harmless,' we must answer that we try only what to us appears to be useful."

Another quotation will indicate the author's view of much current clinical observation: "Numbers add no more to the presumption of utility of a medicine than ciphers added to one another constitute a figure. A simple observation well made is of more value than a thousand of these pseudo-observations."

Space forbids a complete analysis of this excellent work. Enough has been given to indicate its method and scope. The discussion is not confined to theory, but is carried into practical details. While the ideas and suggestions will, many of them, seem self-evident to the experienced physician, a reading of the book will stimulate him to a systematic review of the principles on which he bases his therapeutic practice, while to the beginner in medicine so clear an exposition cannot fail to be of great value. The translation appears to be exceptionally well done, no trace of French idiom being observable.

CIVICS AND HEALTH. By William H. Allen, Secretary, Bureau of Municipal Research. With an Introduction by William T. Sedgwick, Professor of Biology in the Massachusetts Institute of Technology. Cloth. Price, $1.25. Pp. 411, with illustrations. Boston: Ginn & Co., 1910.

The need of a book on modern applied sanitation which would be technically correct, and at the same time popularly interesting, has often been emphasized. Dr. Allen's book is a sincere effort to supply this need. It is divided into five parts. In the first, Dr. Allen discusses health as a civic obligation, stating that the best index to community health is the physical welfare of school children. The second part is devoted to the various physical evils from which school children suffer and the means of recognizing them. The third part is devoted to methods, including such problems as tuberculosis, clean milk, school inspection, etc. The fourth deals with municipal and school organization for securing hygienic conditions, while the last part of the book is devoted to a consideration of alcohol, tobacco, "patent medicines," sex hygiene and various methods of popular propaganda.

As was recently noted in our editorial columns, Dr. Allen's book has been adopted as a text-book for a reading course by a number of the county societies and county teachers' institutions in Missouri. The book contains a large amount of data, well arranged and forcibly presented. It is to be regretted that the influence of the work and of the author have been impaired by a tendency toward extravagant and unwarranted statements in some particulars. One illustration will suffice. "The man who discovers a surgical appliance is forced by the ethics of his profession either to commercialize it and lose his professional standing or to abide the convenience of his colleagues and their learned organizations in testing it. Rather than be branded a quack, charlatan or crank, the physician keeps silent as to convictions which do not conform to the text-book. Many a life-saving, health-promoting discovery which ought to be taken up and incorporated in general prac-

tice from one end of the country to the other and which should be made a part of the minimum standard of medical practice and medical agreement, must wait twenty-five or fifty years for recognition" (p. 272). Physicians who are conversant with medical literature know how constantly the verdict of the profession, as shown in current literature, entirely reverses the judgment of previously recognized "text-book" authorities. As to "life-saving, health-promoting" discoveries "waiting twenty-five or fifty years for recognition" this sweeping generalization has been repeatedly made, without the slightest grounds on which to base it. Can Dr. Allen point to a single "discovery," which, after a fair test proving it to be of any real value, failed to receive the recognition due it? Can he point to one, acceptance of which was delayed five years or even one year after its merits were established, to say nothing of twenty-five or fifty years? It is unfortunate that the influence of a much-needed and otherwise thoroughly valuable work should be impaired by such inaccurate and misleading statements.

PRIMER OF HYGIENE. By John W. Ritchie, Professor of Biology, College of William and Mary, Virginia, and Joseph S. Caldwell, Professor of Biology, George Peabody College for Teachers, Tennessee. Illustrated by Karl Hassmann and Hermann Heyer. Cloth. Price, 40 cents net. Pp. 184, with 113 illustrations. Yonkers-on-Hudson, N. Y.: World Book Co., 1910.

This is the first of a series of elementary books to be used as school text-books, called the New-World Science Series. The aim, which is the instruction of the young in the subjects of hygiene, sanitation and human physiology, is in line with the present wide interest in matters of health and preventive medicine. In the simplest language, enforced by illustrative examples that come within the range of knowledge and understanding of children for whom the book is intended, personal hygiene is taught in its various phases. The reasons for and the manner of taking care of the various organs and functions of the body are taught; the effects of improper habits of eating and drinking, the effects of alcohol and tobacco, tea and coffee, and the necessity for exercise are presented graphically. The germ origin of diseases is explained, and such diseases as typhoid fever, tuberculosis, malaria and small-pox are described, and the method of preventing these diseases and the importance of keeping up body resistance are entered into in a simple way. An understanding of these matters by the very young should be valuable in establishing correct hygienic habits that should prove of inestimable benefit in the prevention of disease throughout the life of the individual, and thereby have a notable influence in the betterment of public health conditions.

EMANUEL SWEDENBORG'S INVESTIGATIONS IN NATURAL SCIENCE AND THE BASIS FOR HIS STATEMENTS CONCERNING THE FUNCTIONS OF THE BRAIN. By Martin Ramstrom. (Till Kungl. Vetenskaps-Societeten I Uppsala vid dess 200-Arsjubileum af Uppsala Universitet. Den 19 November, 1910.) Paper. Pp. 59, with 4 illustrations. University of Uppsala, 1910

After a brief summary of Swedenborg's excursions into the fields of mathematics, astronomy, mechanics, chemistry, mineralogy and geology, the author presents more completely his later teachings on the structure and functions of the brain and a detailed analysis of the sources of these neurologic doctrines.

Although Swedenborg's neurology was permeated by the absurd ideas current in his time, and long afterward, regarding the nature of the "animal spirits" or "fluidum spiritosum" and the seat of the soul, nevertheless the reader cannot fail to be impressed by the great advance of his views over those of most of his contemporaries.

The most important of these are that the centers of the psychic functions are to be found in the cerebral cortex, that these functions are localized in definite cortical areas and that the cortical nerve cells ("cerebellula") are the functional units. All of these views are shown to be represented in more or less fragmentary forms scattered through various previous publications with which Swedenborg was doubtless familiar; but nowhere were they assembled in forms so similar to their modern phases as in Swedenborg's writings.

The explanation of his success in sifting the few kernels of reliable neurologic observation from the rubbish of current speculation and superstition is found in the fact that before publishing his works on the brain he devoted several years to anatomic, physiologic and clinical studies in various scientific centers of Europe and was thus prepared with a real, though limited, basis for a scientific treatment of the scanty neurologic data of his time.

This little work adds an interesting chapter to medical history, valuable for its accurate citations of the possible sources of Swedenborg's ideas from the works of Descartes, Willis, Malpighi, Vieussens and others.

BIENNIAL REPORT OF THE DAIRY AND FOOD COMMISSIONER OF WISCONSIN. For the Period Ending June 30, 1910. J. Q. Emery, Dairy and Food Commissioner, Madison, Wis. Cloth. Pp. 368, with illustrations. 1910.

A perusal of the report of the Wisconsin Dairy and Food Commission is convincing evidence of the fact that Wisconsin is one of the leading states in control of food, especially dairy products. The amount of work carried on during the term of two years is enormous, and the results seem to be excellent. There are records of 2,031 food analyses, and in addition 8,247 samples of milk have been analyzed. Systematic inspection of dairies has put the dairy industry on a relatively high level, and this industry is yielding an annual revenue of $79,000,000. Valuable statistics are given, and elaborate charts of the location of dairies, cheese factories, etc. An interesting comparison between early dairy conditions and the modern state of affairs are presented. The importance of a sanitary milk-supply is emphasized and regulations discussed for the production of clean milk.

The report states that food products with poisonous or deleterious chemical preservatives are almost completely driven from the Wisconsin market and that the labels state the true contents of the packages. Wisconsin has shown us that state control of food products, especially of dairy products, can be made successful, and has put before us a worthy example, which ought to serve as a guide for other states.

NURSES' HANDBOOK OF DRUGS AND SOLUTIONS. By Julia C. Stimson, R. N., Vassar A.B., Superintendent of Nurses, Harlem Hospital of Bellevue and Allied Hospitals, New York City. Cloth. Price, $1 net. Pp. 82. Boston: Whitcomb & Barrows, 1910.

On the principle that it is beyond the nurse to prescribe, but that she should have a knowledge of the powerful and important drugs, the author has attempted to impart such knowledge. Drugs are first classified according to their more important physiologic action. In doing this the author has made the error of classifying chloral as an analgesic. Definitions and examples of the different preparations are given, as fluidextracts, tinctures, etc. Methods and indications for modification of doses, table of weights and measures and equivalents, method of preparing percentage solutions, formulas of solutions in common use, and very brief descriptions of the actions and uses of the more important drugs are given. Some exceptions might be taken to the list given under the head of practical classification of drugs; for instance, under acids, tannic and hydrocyanic acid are given. This would convey an erroneous idea of the action of these drugs. There is a list of Latin phrases and abbreviations, and the book closes with a chapter on serums, antitoxins and vaccines. The book contains useful information for the nurse, but it is not presented in a very attractive form.

THE DETERMINATION OF THE DETERIORATION OF MAIZE, WITH INCIDENTAL REFERENCE TO PELLAGRA. By O. F. Black and C. L. Alsberg, Chemical Biologists, Drug-Plant, Poisonous-Plant, Physiological, and Fermentation Investigations. Issued Dec. 16, 1910. Bull. 199, Bureau of Plant Industry, U. S. Department of Agriculture. Paper. Pp. 36. Washington: Government Printing Office, 1910.

This bulletin describes some work done in the Bureau of Plant Industry with reference to spoiled corn. This is preliminary to a further study to determine the possible connection between spoiled maize and pellagra. In the study of corn the Italians lay great stress on acidity. The bulletin describes methods of examining corn, by inspection, biologically and chemically, determining its acidity, which in sound corn should not be over 30 as measured by alkaline tests, its ash, fat, phenol and other reactions and the determination of its toxicity by animal experimentation; also a study of the microorganisms which cause it to become moldy. The work is valuable as a foundation for the final determination of the rôle, if any, that spoiled maize plays in pellagra. No conclusion has been reached as yet. Many references to the literature are given.

THEORIE UND PRAXIS DER INNEREN MEDIZIN. Ein Lehrbuch für Studierende und Aerzte. Von Dr. Erich Kindborg in Bonn. Erster Band. Die Krankheiten der Zirkulations- und Respirationsorgane. Cloth. Price, 7 marks. Pp. 404, with 47 illustrations. Berlin: S. Karger, 1911.

The plan of this book is founded on the author's observation that students of practical medicine have frequently forgotten the pertinent facts learned in their preliminary studies of the fundamental sciences. Hence students are apt to pursue the subject of internal medicine with confused notions of the relations which chemistry, physiology and bacteriology bear to the subject at hand. Time is lost in referring to text-books, and the author has attempted to supply this lack by including, in his account of diseases, the essential facts of the fundamental sciences which find an application in the special case. The work is well done and may profitably be studied, not only by medical students but also by physicians who wish to review the subject.

MOTHERHOOD. A Manual on the Management of Pregnancy, the Preparation for and Conduct of Labor and the Principles and Methods of Infant-Feeding up to the Third Year of the Child's Life. Prepared especially for Mothers, Nurses and Students of Medicine. By Hudson D. Bishop, M.D., Visiting Obstetrician to the Maternity Hospital, Cleveland. Cloth. Price, $1.50 net. Pp. 244. Cleveland: Rose Publishing Co., 1910.

The author states in the preface that he has "endeavored to give everything, in a condensed form but in sufficient detail, that either the mother or nurse should know regarding the management of pregnancy, labor, and the lying-in, together with the care and feeding of the child." A book on this subject suitable for both mothers and nurses is an impossibility. It is unnecessary to alarm the expectant mother by informing her of all the symptoms and all the dangers of hemorrhage, abnormal presentations, puerperal sepsis, mastitis, phlegmasia alba dolens, etc.

Medicolegal

Unconstitutionality of Statute Taking Away Defense of Insanity, Etc.

The Supreme Court of Washington in the case of State vs. Strasburg (110 Pac. R. 1020) holds unconstitutional the statute of that state, enacted in 1909, which provides that "It shall be no defense to a person charged with the commission of a crime that at the time of its commission he was unable, by reason of his insanity, idiocy or imbecility, to comprehend the nature and quality of the act committed, or to understand that it was wrong; or that he was afflicted with a morbid propensity to commit prohibited acts; nor shall any testimony or other proof thereof be admitted in evidence."

The provisions of the state constitution especially considered were: "No person shall be deprived of life, liberty, or property without due process of law;" and, "The right of trial by jury shall remain inviolate." Consequently the court was confronted, as Justice Parker says, with the novel and grave question: Had the legislature the power under the constitution to enact a law taking away from a defendant accused of crime the opportunity to show in his defense the fact that at the time of the commission of the act charged as a crime against him he was insane, and, by reason, thereof, was unable to comprehend the nature and qualjty of the act committed? It is believed that this was the first instance of any such enactment. And an examination of a number of authorities is taken to show that the question of the insanity of the accused at the time of committing the act charged being one of fact when sought to be shown in his behalf, it is and always has been a question of fact for the jury to determine, as much so as any other question of fact bearing on the responsibility of the accused for the occurrence of the act relied on as constituting the offense charged.

According to the opinion prepared by Chief Justice Rudkin, if the act stopped with what is quoted above, there could be no question as to the legislative intent. For the first time in history, as far as the court was advised, the legislature of a civilized state has attempted to place the idiot, who hath no understanding from his nativity, the imbecile and the insane, who have lost their understanding through disease or mental decay, and the sane man, in the full possession of all his mental faculties, on an equal footing before the criminal law. But the legislature did not stop there.

Another section of the act provides that: "Whenever, in the judgment of the court trying the same, any person convicted of a crime shall have been at the time of its commission unable by reason of his insanity, idiocy or imbecility, to comprehend the nature and quality of his act, or to understand that it was wrong, or shall be at the time of his conviction or sentence insane, or an idiot, or imbecile, such court may in its discretion direct that such person be confined for treatment in one of the state hospitals for the insane, or in the insane ward of the state penitentiary, until such person shall have recovered his sanity. In determining whether any person convicted of a crime was at the time of the commission thereof unable by reason of his insanity, idiocy or imbecility to comprehend the nature and quality of his act, or to understand that it was wrong, or is at the time of his conviction or sentence insane or an idiot or imbecile, the court may take counsel with one or more experts in the diagnosis and treatment of insanity, idiocy and imbecility, and make such personal or other examination of the defendant as in his judgment may be necessary to aid him in the determination."

When these two sections are construed together, it is believed that the legislature did not intend to punish one for the commission of a crime, when by reason of his insanity, idiocy, or imbecility he was unable to comprehend the nature and quality of his act, or to understand that it was wrong, but rather that it intended to minimize the well-known evil resulting from the all-too-frequent interposition of the defense of insanity in homicide cases, where no other defense is available, by changing the time and mode of trial of the issue of insanity. But, assuming that the legislature simply intended to change the time and mode of trial of the issue of insanity, this latter-quoted section is lacking in every essential requirement of due process of law. While if the view must be accepted that the legislature intended to abrogate the defense of insanity in its entirety, and to place the sane and the insane, the idiot, and the imbecile on an equal footing before the criminal law, the opinion is still held that the act is unconstitutional and void.

The state sought to uphold the act on two grounds: first, on the ground that it is within the police power of the state to eliminate the question of intent in all criminal cases; and, second, on the ground that under modern theories the lawbreaker is taken into custody by the state for his own amelioration and reformation, and not as a punishment for crime—in other words, that the theory of legal punishment for crime is a relic of a barbarous age. But neither contention is accepted.

It will be conceded that the legislature has a broad discretion in defining and prescribing punishment for crime, but, broad and pervading as the police power is, it is not without constitutional limitations and restraints, and a valid penal law can scarcely be conceived of which would punish a man for the commission of an act which the utmost care and circumspection on his part would not enable him to avoid.

The argument that persons are no longer punished for their crimes is illusory and unsound. The man who is deprived of his liberty is punished, and you cannot change the fact by changing the name.

Exhibition of Body and Proof of Probability of Life

The Supreme Court of Pennsylvania says, in the personal injury case of Benson vs. Altoona & Logan Valley Electric Railway Co. (77 Atl. R. 492) that about five months after an accident in which the plaintiff was injured he was stricken with apoplexy which paralyzed his entire right side, and the real controversy at the trial was as to whether the paralytic condition was the result of the injuries received at the time of the accident or was due to a disease with which the defense claimed he was afflicted. The first assignments of error went to the refusal of the trial judge to compel the plaintiff to

bare parts of his body for the examination of the jury. The plaintiff had submitted to a private physical examination by three physicians representing the defendant, and they were prepared to give their testimony as to the marks on his body. The Supreme Court holds that an exhibition of this kind to an unlearned jury is apt to do more harm than good, and the trial judge committed no error in refusing to order it in this case.

Nor does the court see any error in an instruction wherein the trial judge said to the jury: "There is no table of life probability adduced here in evidence, and I suppose counsel are afraid owing to the recent rulings of the Supreme Court to put in a life table, but it would be for you to look at this man and determine on the weight of the evidence from his appearance and from the evidence how long he would be likely to live, and, if his injury is permanent, then he ought to be compensated for the loss of earning power and for any pain and suffering that the weight of evidence shows he would endure in the future." The court says that, while life tables are admissible in evidence, the probability of life can be shown in other ways. In answering a request for an instruction, the trial judge told the jury that they should take into consideration the plaintiff's age, state of health, business habits, and manner of living. The suggestion that they might look at the plaintiff was expressly coupled with the instruction that their determination must rest on the weight of the evidence in the case.

Society Proceedings

COMING MEETINGS

American Medical Association: Joint Conference on Medical Education and Medical Legislation, Chicago, March 1-3.
Association of American Medical Colleges, Chicago, February 27-28.
Medical Society of the Missouri Valley, St. Joseph, Mo., March 16-18.
Natl. Confed. of State Med. Exam. and Licng. Bds., Chicago, Feb. 28.

CHICAGO PEDIATRIC SOCIETY

Regular Meeting, held Jan. 17, 1911

The President, DR. JOHN M. DODSON, in the Chair

Experimental Study of Allergy in Tuberculosis

DR. H. F. HELMHOLTZ: I investigated experimentally the relation of the point of inoculation and the size of the dose to the appearance and persistence of the cutaneous reaction. Forty-two guinea-pigs were inoculated in three series. In the first series, subcutaneous and intraperitoneal inoculations were compared; in the second series, intraperitoneal and intracardial inoculations were compared, and all three were compared in the third series. It was found that the injection of large doses of tubercle bacilli resulted fatally without producing an allergy demonstrable with the v. Pirquet test, in the majority of the intraperitoneal inoculations. Intracardially, a positive reaction resulted in a short time. Subcutaneously, all the pigs reacted. The same order also held for the small doses. The peritoneal inoculations gave rise to shorter periods of reactivity; the intracardial came next, and the subcutaneous gave the longest reaction. The interval between inoculation and first positive reaction varied from seven to one hundred days. The allergy varied from the first day to an indefinite period.

The microscopic examination of tuberculin reactions was undertaken in a series of strongly reacting pigs, both in normal and in tuberculous pigs, that were no longer reacting. The control and non-reacting animals showed practically no leukocytic infiltration. The sloughing extended slightly deeper in the latter than in the former. In the active reactions there was a thick slough in the area of scarification, separated from the normal tissue by a thick layer of purulent exudate, extending up to the surface on either side. The subcutaneous tissue, in the large reactions, had the typical appearance of an acute cellulitis, with the connective tissue elements widely separated by a fibrinous network, rich in polymorphonuclear cells.

In a series of six experiments, made to determine how soon the cutaneous reaction would appear after the peritoneal injection of tuberculous tissue, the animals were vaccinated every second day, beginning with the day after inoculation. On the sixteenth day after injections not a single animal had reacted positively; in fact, only three reactions occurred. Then, simultaneously, scarifications were made in the often vaccinated area, and in a hitherto unused portion of the skin. The animals all showed a strong positive reaction in the new area and practically none in the oft vaccinated area, with one exception, in which there was no reaction in either place. Only one animal showed a reaction in the old area. It is probable that this finding may be explained by assuming a using-up of the antibodies by the injected tuberculin, not sufficient antibodies remaining to combine with the tuberculin introduced through the scarified area to produce a reaction.

DISCUSSION

DR. I. A. ABT: How do you explain the absence of the v. Pirquet reaction in cases of acute tuberculosis with fever?

DR. H. F. HELMHOLTZ: The disease process uses up the antibodies and none remains to unite with the tuberculin introduced by scarification. By using a large enough dose of tuberculin intracutaneously, a slight reaction usually results.

DR. J. H. HESS: Schlossman claims that the injection of tuberculin increases immunity, while Hamburger holds that the disappearance of the cutaneous reaction to tuberculin reduces immunity.

DR. H. F. HELMHOLTZ: Observers generally disagree with Schlossman, asserting that by giving such large doses of tuberculin he merely uses up the available antibodies, and subsequent tests are negative. If the inoculations are interrupted for ten days or two weeks, the tuberculin test is again positive. I have caused the reaction to disappear by giving large doses of tuberculin.

Traumatic Diabetes in Children

DR. S. STRAUSS: I have seen two cases of pancreatic diabetes following trauma. Both patients are alive and well. The first patient, aged 11, was hit by an automobile in July, 1907, and sustained a fracture of the right tibia. In February, 1908, he developed classical symptoms of diabetes. The v. Noorden gruel lowered the sugar output, but produced acidosis.

The second patient, aged 13, fell from a second story window, striking on his head. There was no evidence of injury. Three months afterward he had symptoms of diabetes. The v. Noorden diet invariably caused acetone to appear in the urine, and the ammonia coefficient was raised. The sugar output varied. The explanation probably is that the patient was suddenly switched from an ordinary diet to the v. Noorden diet without giving him a chance to regain his metabolism balance. A more gradual change of diet proved more satisfactory. At no time was there loss of body weight.

DISCUSSION

DR. I. A. ABT: Diabetes in children usually results fatally, but these two cases were a revelation to me. Since then other similar cases have been reported. Of course, this is a different type of diabetes. Epstein showed that in 50 per cent. of these cases the trauma is to the head and in 50 per cent. elsewhere. We are in the habit of thinking that it is easy to produce diabetes if there is injury at the base of the fourth ventricle, yet these cases show that it may occur quite independently of any cerebral lesion. The matter of diet and acidosis was also interesting in these cases. When the patient was put suddenly on a different diet, there was either a rise in the ammonia coefficient curve or an increase in the sugar. When the patient was placed gradually on a different diet, these findings were not noted. It is difficult to feed these children the v. Noorden diet, because it is repulsive, and far from appetizing, but it is marvelous to see the good result when the patient is placed on this diet. The sugar disappears from the urine promptly. An observer in Budapest has reported a large series of cases of alimentary glycosuria in children who had been receiving malt foods. They were believed to be cases of pure diabetes, but when the carbo-

hydrate was withheld the glycosuria disappeared. However, the two cases reported by Dr. Strauss were purely of traumatic origin, and not of the type of fatal diabetes mellitus so commonly seen in children.

DR. H. F. HELMHOLTZ: We know that the burning of carbohydrates in the body keeps the acidosis down, and when this does not take place, the acetone bodies are excreted in the urine. If carbohydrate is withheld entirely, the burning of fat is interfered with, and beta-oxybutyric acid accumulates in the body, and is excreted in the urine. In order to prevent this, therefore, there must be a burning of carbohydrates in the body. When the patients, therefore, were on the v. Noorden diet, they evidently burned all the carbohydrate given them, and when put on the other diet the sugar reappeared. These were not cases of diabetes where sugar is formed from proteids, so that the sugar found must have been introduced. The fact that the acidosis disappeared is absolute evidence that there were from 50 to 75 grams of carbohydrate being burned during that time. The acidosis is produced by an insufficiency of carbohydrates. When there are no carbohydrates in the body, the fats are burned and produce beta-oxybutyric acid. This acid cannot be oxidized any further, and is split into diacetic acid, and from that into acetone.

Study of Blood-Pressure in Normal Children

DR. MAY MICHAEL: In my studies I took into account not only the weight and height of the child, but also the circumference of the arm. I examined 128 children. The readings were taken as nearly as possible at the same time of day and under the same conditions. There was apparently an increase in the pressure with the increase in height and weight, but when the circumference of the arm was measured and the blood-pressure to the square millimeter estimated, the actual pressure was practically the same in a 5-year old child, 3 feet, 6 inches tall, weighing 40 pounds, as in a 15-year old child, 4 feet, 8 inches tall, weighing 90 pounds. According to Sallom, the area on which the pressure is exerted must be considered in estimating the blood-pressure, so that the actual blood-pressure must equal the height of the column of mercury, divided by the width of the cuff, multiplied by the circumference of the arm, which represents the area of the base. In the 128 children examined this formula did not vary more than 0.0014 mm., the mean pressure being 0.0070 mm., and the extreme 0.0084 mm. The formula is employed as follows: Multiply the arm circumference, 183 mm., by 90 mm., the width of the cuff. This equals 16,470 square millimeters, which is found to sustain 120 mm. of mercury. Therefore, one square millimeter will sustain 120/16,470, or 0.0072 mm., which represents the actual blood-pressure.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal

February 9

1 *Sporotrichosis in Man and in the Horse. R. L. Sutton, Kansas City, Mo.
2 The Special Relation of Modern Medicine to the Health of Women. A. C. Vietor, Boston.
3 Overgrowth of the Epiphysis of the Lower End of the Femur with an Obliteration of the Epiphyseal Line. J. W. Sever, Boston.
4 *Breast Abscess During Pregnancy. J. T. Williams, Boston.

1. **Sporotrichosis in Man and in the Horse.**—Sutton reports one case seen by him. The disease was confined to the wrist and followed an injury resulting while the patient was repairing a manger at which fed a horse which had sporotrichosis of the neck. The usual line of treatment, potassium iodid in increasing dosage, gave excellent results in this instance. The lesion was somewhat resistant, probably because the infection was a mixed one (sporothrix and *Staphylococcus pyogenes aureus*), but it healed promptly under the daily application of gauze packs moistened with 1 per cent. liquor cresolis compositus.

4. **Breast Abscess During Pregnancy.**—Williams believes that 5.5 per cent. of all breast abscesses occur during pregnancy, and that organisms are present on the nipples in 100 per cent. and in the milk ducts in 86 per cent. of all pregnant women. When their growth is predisposed to by engorgement, or the resistance of the breast tissues is lowered by injury, or the organisms present are of unusual virulence, they attack the tissues and produce inflammation. The prophylaxis of breast abscess during pregnancy, according to Williams, consists in absolute cleanliness of the nipple, and the prompt treatment of mastitis by bandage, ice and saline catharsis.

Medical Record, New York

February 11

5 Work of the New York Academy of Medicine During 1910. J. A. Wyeth, New York.
6 Economics of Medicine. W. M. Polk, New York.
7 Transfusion of Blood in Three Cases of Pernicious Anemia. D. Bovaird, New York.
8 Direct Inspection of the Rectum and Sigmoid Colon. E. Beer, New York.
9 Inebriety. DeL. Carter, New York.
10 Is Sterilization of the Habitual Criminal Justifiable? C. E. Nammack, New York.
11 Asphyxia of the New-Born Infant Relieved by Placental Aeration. M. H. Freund, New York.
12 Appendectomy with Cocain Anesthesia. C. R. Hancock, New York.

Lancet-Clinic, Cincinnati

February 11

13 Eight Patients with Syphilis and Parasyphilitic Affections Treated with Salvarsan. A. Ravogli, E. H. Shields and E. B. Tauber, Cincinnati.
14 A Case of Putnam's Type of Combined Scleroses. L. B. Askenstedt, Louisville.
15 *Progress in Intestinal Surgery, with Demonstration of a New Method of Suturing Bowel. A. E. Benjamin, Minneapolis.

15. Abstracted in THE JOURNAL, Oct. 1, 1910, p. 1222.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

February

16 *Ninety Cases of Puerperal Eclampsia and a Critical Review of the Treatment of This Disease. E. G. Zinke, Cincinnati.
17 Significance of Anatomic-Histologic Examination Methods in Obstetrics and Gynecology. I. C. Rubin, New York.
18 *Etiologic Influence of Pregnancy on Molluscum Fibrosum. B. C. Hirst, Philadelphia.
19 *Myoma of the Uterus, with Special Reference to Degenerative Changes. J. B. Deaver, Philadelphia.
20* Intravenous Injection of Magnesium Sulphate in Bacteriemia. R. R. Huggins, Pittsburg.
21 Two Right-Sided Femoral Hernias in the Same Patient. N. S. Scott, Cleveland.
22 Obstetric Surgery in Private Practice. K. H. Aynesworth, Waco, Texas.
23 Two Cases of Antepartum Infection. C. B. Ingraham, Denver.
24 Puerperal Cough and Its Treatment. D. H. Stewart, New York.
25 *Treatment of the Retroflexed Gravid Adherent Uterus. X. O. Werder, Pittsburg.
26 *Method of Teaching Vagino-Abdominal Examination. F. J. Taussig, St. Louis.
27 Complete Inversion of the Uterus of Fourteen Years' Standing. S. E. Tracy, Philadelphia.
28 Treatment of Congenital Syphilis by Administration of Salvarsan to the Nursing Mother. H. D. Chapin, New York.
29 History of Treatment of Cerebrospinal Meningitis with Special Reference to Serotherapy. H. T. Radin, New York.
30 Care and Treatment of Nervous Children. I. T. Smart, New York.
31 Therapeutic Use of Tuberculin in Intrathoracic Tuberculosis of Children. L. C. Ager, Brooklyn, N. Y.

16 and 20. Abstracted in THE JOURNAL, Oct. 15, 1910, p. 1404.

18. **Influence of Pregnancy on Molluscum Fibrosum.**—In Hirst's patient, at the age of 18, four or five typical growths of molluscum fibrosum appeared on the anterior surface of the body, but did not increase in number. The woman married at twenty-five and became pregnant for the first time at twenty-six. During the first pregnancy the growths increased rapidly in number. After delivery, the numerical augmentation ceased, but the growths already developed remained. In each successive pregnancy, including the present, which is the seventh, there was an increase in the number of the growths, but no such increase in the intervals between the pregnancies. This case differs from Brickner's in the appearance of the disease to a very moderate degree before impregnation, in the absence of pigmentation, in the failure of the growths to disappear after delivery and in their greater size

and number. It differs from the cases described by dermatologists in the influence exerted on the progress of the disease by pregnancy.

19. **Myoma of the Uterus.**—The only point in which Deaver differs from those who believe in the higher percentage of malignant change, is in not advocating the removal of an accidentally discovered fibroid that is giving no symptoms. This, he says, is not a large class of cases and therefore, not a very important difference. Any tumor that begins to give trouble or to cause symptoms, even if only an irregular discharge, should be removed. The tendency toward malignant degeneration gives him one of the elements of his belief. The remainder are furnished by the greater frequency of troublesome non-malignant degeneration, the likelihood of hemorrhage and chronic anemia with cardiac and vascular disturbances, the frequency of pain and more or less dangerous pressure effects on the urinary tract, the intestines and surrounding organs, the proved failure of fibroids to cease from troubling with the menopause, and the certainty that in a large percentage of cases delay merely means operation later under less favorable conditions.

25. **Retroflexed Gravid Adherent Uterus.**—Werder reports briefly two cases coming under his observation of pregnancy in the retroflexed adherent uterus. He emphasizes two points in the treatment: (1) prompt operation as soon as the diagnosis under anesthesia has been confirmed; (2) separation of adhesions and reposition of uterus, but avoidance of all attempts at radical treatment or any other operative steps endangering the continuance of pregnancy. When operating before the end of the second month, the introduction of a pessary for a short period will prevent a return of the displacement without any danger to the fetus.

26. **Teaching Vagino-Abdominal Examination.**—Joint bimanual palpation is favored by Taussig. The essentials for accurate bimanual examination in his opinion are a knowledge of how the normal organs feel and where they lie in the pelvis, muscular relaxation of patient and physician, gentle manipulation and systematic exploration.

Wisconsin Medical Journal, Milwaukee

January

32 Present Status of Spinal Analgesia. A. J. Puls, Milwaukee.
33 Lobar Pneumonia. A. G. Hough, Morrisonville.
34 Mortality of Pneumonia. F. I. Drake, Madison.
35 A Surgical Aspect of Medical Education. J. L. Yates, Milwaukee.
36 *Chronic Diphtheria. G. C. Ruhland, Milwaukee.
37 A Lipomatous Growth in the Submucous Tissue of the Ileum and Cecum Producing Invagination, Rotation and Obstruction of the Bowel. A. H. Levings, Milwaukee.
38 The Tsetse Fly and Sleeping-Sickness; Other Insect Carriers of Disease. A. C. Burrill, Milwaukee.

36. Abstracted in THE JOURNAL, July 23, 1910, p. 344.

American Journal of Physiology, Boston

February

39 *Distribution of Glycogen Over the Liver Under Various Conditions. J. J. R. Macleod and R. G. Pearce, Cleveland.
40 *Metabolism of Dogs with Functionally Resected Small Intestine. E. P. Underhill, New Haven, Conn.
41 Influence of the Preceding Diet on the Respiratory Quotient After Active Digestion Has Ceased. F. G. Benedict, L. E. Emmes and J. A. Riche, Boston.
42 Respiratory Change as Affected by Body Position. L. E. Emmes and J. A. Riche, Boston.

39. **Studies in Experimental Glycosuria.**—The distribution of glycogen over the liver, particularly during ether anesthesia and following the taking of food, and the average course of postmortem glycogenolysis (i. e., its time of onset and the velocity with which it proceeds), were two points investigated by Macleod and Pearce. They found that the percentage amount of glycogen in the different lobes of the liver varies by about 5 per cent. This variation, they think, is partly due to errors in the method of estimation (Pflüger) and partly because of an unequal amount of blood in different portions of the organ. These differences become greater (a) under ether anesthesia; (b) when the liver is left *in situ* in the dead animal, but are not materially affected by absorption of carbohydrate food from the intestine. After death in an etherized animal there is usually, but not always, an acceleration in the rate of glycogenolysis; this varies in different lobes. So far it has been impossible to determine the exact time of onset of post-mortem glycogenolysis, but it is certainly well established within twenty minutes after death. Once established, post-mortem glycogenolysis proceeds at a uniform speed for several hours after death, being dependent solely on the amount of glycogen remaining in the viscus (temperature, etc., being constant). Post-mortem glycogenolysis is much more active in intact than in cut up liver. In cut up liver, glycogenolysis is much more rapid when the liver is in contact with blood than when it is blood-free. The greater glycogenolysis in intact liver is not due to any influence which the nervous system might have during the few minutes after death in which it could still exert an influence. Stimulation of the great splanchnic has no constant influence on the course of post-mortem glycogenolysis.

40. **Metabolism of Dogs.**—From the experimental observations made by Underhill, it is apparent that as much as 39 per cent. of the small intestine of a dog may be short-circuited without causing significant detrimental changes in utilization of the various foodstuffs, and the animal may gain in weight. This statement is equally true when observations are made either at a period shortly after operation or at a period several months later. When as much as 66 per cent. of the small intestine has been functionally resected, the nutritive condition of the animal presents an entirely different aspect. Under these conditions, fat utilization is particularly decreased and the dog displays a decided tendency to furnish negative nitrogen balances. A small though steady loss of weight is slightly noticeable. Food utilization is in general apparently much better immediately after the operation than at a later period. In no animal observed did a material increase in fat intake cause significant change in the utilization of this or other foodstuff. When about three-quarters of the small intestine of the dog has been short-circuited, food utilization for the most part is seriously impaired, at least at a period several months after the operation. This is particularly true for fat utilization. Indican elimination through the urine is not materially altered under these conditions by replacement of meat in the diet with gelatin, an observation directly opposed to that obtained with the normal dog. The animal with a short-circuited intestine displays a greater ability to utilize carbohydrate than does the normal dog. Even though the carbohydrate intake may be much, in one case several times, greater than the normal animal requires, carbohydrate utilization is complete whether the test is made shortly after the operation or months later. This observation, Underhill believes, may prove of practical importance in the dietary treatment of the human subject who has undergone extensive intestinal resection.

Memphis Medical Monthly

December

43 *A Case of Gunshot Wound Through the Head. J. T. Seymour, Whiteville, Tenn.
44 The Arylarsonates in Syphilis and Pellagra. E. H. Martin, Hot Springs, Ark.
45 *Surgical Treatment of Goiter. W. T. Black, Memphis.
46 Making a Neurologic Diagnosis. G. G. Buford, Memphis.

43. Abstracted in THE JOURNAL, Dec. 10, 1910, p. 2090.

45. Abstracted in THE JOURNAL, Dec. 3, 1910, p. 2008.

Ophthalmic Record, Chicago

January

47 Small Round-Cell Sarcoma of the Orbital Cellular Tissues. W. B. Weidler, New York.
48 Cryptophthalmia. W. Eberhardt, Michigan City, Ind.
49 Parinaud's Conjunctivitis. G. F. Keiper, Lafayette, Ind.
50 Recollections of a Visit to Prof. Herman Snellen, Sr. E. O. Sisson, Denver.

American Journal of the Medical Sciences, Philadelphia

February

51 *Medicinal Treatment of Diabetes Mellitus. F. Forchheimer, Cincinnati.
52 *Dietetic Treatment of Diabetes Mellitus. N. B. Foster, New York.
53 *A Résumé of Vaccine Therapy. H. W. Stoner, Baltimore.
54 Malignant Disease as a Problem of Modern Surgery. J. B. Deaver, Philadelphia.
55 *The Thenar and Hypothenar Types of Neural Atrophy of the Hand. J. R. Hunt, New York.
56 *Association of Suppurative Disease of the Nasal Accessory Sinuses and Acute Otitis Media in Adults. C. F. Coakley, New York.

57 Metabolic Changes in Hematoporphyrinuria Not of Drug Origin. C. L. Dana, New York.
58 *A Metabolic Study of Myotonia Atrophica. R. Pemberton, Philadelphia.
59 *Chronic Influenza and Its Relation to Neuropathy. G. I. Jones, U. S. Army.

51. **Medicinal Treatment of Diabetes Mellitus.**—For ordinary cases, Forchheimer prefers arsenic, given as liquor potassii arsenitis, in ascending doses, until mild toxic effects are produced; then the dosage should be gradually reduced. In order to get the best results from arsenic, mild toxic effects must be produced. This drug is especially indicated in severe cases, but it should always be combined with diet. It may also be given for general indications, and it is very valuable in neurotic, debilitated subjects. This drug does not increase sugar tolerance, and its effects gradually disappear when it is discontinued; unlike opium, never during its administration. Furthermore, in all the patients Forchheimer has treated, repeated courses have not lost their effect on the glycosuria and diminution of acetone bodies. Hexamethylenamin is especially valuable in such patients in whom diet regulation is impossible. At present, Forchheimer has employed it for five years, and given it in 5-grain doses, three or four times a day, an amount which has been, in one instance, continually taken for four months without any bad effects. With hexamethylenamin, glycosuria is improved and tolerance is increased. He does not recommend it for severe cases without proper diet.

In so far as belladonna is concerned, Forchheimer's results were the same whether he gave atropin methylbromid, atropin sulphate or belladonna itself. In a large number of cases glycosuria, and with it acetone bodies, have diminished or disappeared and carbohydrate tolerance was increased. Indeed, some of the patients were not dieting when taking this remedy, but when it was discontinued the sugar did not reappear for some time. In several severe cases it did no good. It seems perfectly adapted to milder cases, so that in one instance, without diet, there has been absence of sugar for over a year. In one case of diabetes in a child the disease ran its usual course, notwithstanding a strict adherence to Rudisch's directions as to diet and atropin methylbromid.

52. **Dietetic Treatment of Diabetes Mellitus.**—As a means of finding the type to which an individual case belongs, Foster emphasizes the importance of a diet representing approximately 125 grains of protein and 100 grams of carbohydrate, and which is equivalent to 3,200 calories. The patient is restricted absolutely to this diet, for two days, the urine being collected during the second twenty-four hours, and estimations made for the quantity of glucose and the presence and approximate amounts of diacetic and β-oxybutyric acids. The next step in the diet arrangement depends exclusively on this analysis. A number of illustrative cases are cited and recipes are given which for the most part were contributed by the families of patients.

53. **Résumé of Vaccine Therapy.**—While the medical literature abounds in articles on vaccine therapy, they are scattered through a large number of medical journals, covering several years. With the hope that by grouping together the cases from the literature, the reader may at a glance gain a better comprehension of the work being done and the results accomplished in this line, Stoner has written this paper. Its length prohibits the making of an abstract.

55. **Neural Atrophy of the Hand.**—In addition to the atrophic paralysis of the intrinsic muscles of the hand, of myelopathic and myopathic origin, Hunt believes that a neural type should also be recognized. Those of neural origin may be separated into two well-defined clinical types, both due to a compression lesion of a motor branch of a mixed nerve. These may be appropriately designated as follows: A hypothenar type, which term indicates the site of the compression at the base of the hypothenar eminence and its relationship to the ulnar nerve. A thenar type, which also indicates the site of the compression at the base of the thenar eminence, and the relationship to the median nerve.

56. **Association of Suppurative Disease.**—Coakley believes that the severer cases of acute rhinitis accompanied by acute infection of the nasal accessory sinuses are far more apt to be complicated by aural disease than the milder types of acute rhinitis. It is extremely rare for a patient with acute sinus disease, seen before acute otitis media has developed, to develop subsequently, during the course of the treatment, acute otitis media. Coakley is convinced that the early recognition of acute sinus disease, and appropriate treatment for its relief, will prevent many a patient from developing acute otitis media. The fact that acute otitis media usually occurs on the same side as the sinus disease inclines him to the belief that the pus from the various sinuses bathes the pharyngeal orifice of the Eustachian tube and is thence forced into and infects the tympanum. Patients with acute otitis media, associated with nasal accessory sinus disease, are more likely to develop such a degree of mastoiditis as to require a mastoid operation than patients with otitis not complicated by nasal accessory sinusitis. Coakley is inclined to believe, however, that some patients would repair the damage to the tympanum and mastoid if relieved of the added burden of the nasal disease. Patients suffering from chronic suppuration in the nasal sinuses are much less prone to acute otitis media than those having acute sinusitis. Coakley accounts for this in two ways: (a) The bacteria found in the pus in many cases of chronic sinusitis grow very poorly on any nutrient media; they seem to have lost much of their virulency. Should they be forced into the tympanum through the Eustachian tube, they may not infect the ear. (b) It is also probable that the antibodies in the chronic cases are a prevention against inciting a new infection. It is a well-known fact that after any operation, intranasal or external, in a case of chronic sinusitis, the virulency of the bacteria is greatly increased, owing to the wound secretions forming an excellent nutrient medium; hence the cellulitis or erysipelas which develops after some external operations in cases of chronic nasal accessory sinus disease.

58. **Myotonia Atrophica.**—Pemberton found that there is apparently no significant disturbance of the calcium output in muscular dystrophy; at least, in the presence of those phenomena which suggest Thomsen's disease. This can probably be inferred, though not surely, in regard to Thomsen's disease "*per se*." The creatinin output, however, under these circumstances may be considerably reduced and the creatinin co-efficient conspicuously low. Pemberton says that a consideration of the calcium, creatinin and general nitrogenous metabolism as recorded here, and in myasthenia gravis, may lead to information of value in classifying doubtful conditions of this nature and in localizing the perversions of function.

59. **Chronic Influenza.**—Jones' thesis is that influenza may be and frequently is a chronic intoxication. Chronic influenza in many respects certainly bears a close similarity to tuberculosis, and Jones has no doubt that many cases of chronic capillary bronchitis, pneumonia, bronchiectasis, etc., in which the disturbing factor was *Bacillus influenzæ*, have been diagnosticated tuberculosis. This has, in a way, been confirmed by his study of three cases, which clinically presented symptoms and physical signs of tuberculosis, but in which the tubercle bacillus could not be isolated. In man, therefore, the influenza bacillus must be regarded as capable of producing pathogenic processes without the aid of other organisms. The influenza bacillus must be regarded as the most important cause of a large number of cases of respiratory infection (acute and chronic) during the interepidemic periods; and as a contributing cause in many other cases when found mixed with the pneumococcus, *Micrococcus catarrhalis*, and other organisms. Patients may carry the organism in enormous numbers for years in their sputum, just as they have been shown to carry other common representatives of the flora of the respiratory tract. Jones believes that it is without question that organic and inorganic nerve disease results from acute influenza. Whether influenza is the original cause of psychoses acting as a chronic infection, or whether it is the contributing cause to a psychopathic basis, is a question. The history of influenzal epidemics has shown statistically that the mental and nerve force is lowered for a considerable time after the disappearance of the disease epidemically.

Bacillus influenzæ is responsible for a majority of cases of sinusitis, otitis, salpingitis, mastoiditis, and their sequels. The organism has been recovered in the discharge of more than 50 per cent. of patients suffering from suppurative otitis media, usually mixed with the pyogenic organisms.

Archives of Pediatrics, New York

January

60 *Mortality During the Early Weeks of Life. A. Jacobi, New York.
61 *Should Eclamptic Mothers Nurse Their Newborn? J. R. Goodall, Montreal.
62 *Diagnosis of Pleuritic Effusions in Infancy. D. J. M. Miller, Philadelphia.
63 *Proctoscopy and Sigmoidoscopy in Infancy as Applied to Infectious Diarrhea. H. L. Bowditch, Boston.
64 *Acute Lymphatic Leukemia in Infant with Leukocyte Count of 1,330,000. B. S. Veeder, Philadelphia.
65 A Simple Apparatus (Weiss) for Drawing Breast Milk. C. Herrmann, New York.
66 A Scale Pan for Simultaneously Weighing and Measuring Infants. C. Herrman, New York.

60. **Mortality During the Early Weeks.**—Discussing the means of preventing infant mortality during the early weeks of life, Jacobi says:

> If you want to break up the infant mortality of the first weeks of life, see that your young doctors can be made competent and the indigent women supplied with a thoroughly informed midwife. As long as you cannot abolish dire poverty, give no rest to your legislatures, none to your health departments. No infant fit to live must be sacrificed through the absence of a competent and responsible midwife, who is taught enough of hygiene to prevent fatal mistakes and enough to know when it is time to send for a doctor. The women of the nation must be healthy, else the young will be feeble and sickly. But the vast majority of the confined women in the large cities have no time to recover. Tens of thousands get up after their confinement on the third or fourth day to do the washing and the rest. Instead of the two months, which is the shortest period in which the organs can become again normal, a few days are allowed, with scanty food and no attention, and a household to care for. A woman who has not sufficient time to recover will start and retain her pelvic inflammation and decrepitude. Her present child suffers and dwindles and dies; the future ones, if there be any, will be decrepit when born, and are counted, or will be counted, among the stillborn.

61. This article was also published in the *Montreal Medical Journal*, November, 1910, and *Surgery, Gynecology and Obstetrics*, January, 1911.

62. **The Diagnosis of Pleuritic Effusions in Infancy.**—Miller emphasizes the following points: Pleurisy with effusion is a common affection in infants under the age of 2 years. In the majority of cases it is purulent. Because of the disastrous, and even fatal, results of delay in, or mistakes of, diagnosis, it should be recognized early so that prompt—that is, surgical—treatment may be instituted. The diagnosis is often obscure, demanding, in the highest degree, carefulness, skill and experience. In arriving at a diagnosis, the antecedent affections should be fully appreciated. Of these, pneumonia is by far the most common. The general symptoms, as well as the physical signs, should be carefully weighed and considered. Of these, the latter are the more distinctive. The most reliable signs, in the order of their importance, are (1) exploratory puncture, (2) dulness with a sense of resistance, and (3) displacement of the apex. The other physical signs, so valuable in differentiating effusions in the adult, are uncertain, variable and confusing, and cannot be relied on in infants. The recognition of localized collections of fluid is especially puzzling, and demands great skill and watchfulness and a frequent resort to exploratory puncture or operation. The latter is safe, even when the lung is pierced, and particularly so when fluid is present. Notwithstanding the rare accidents that have followed this procedure, it should be employed to determine the character of the fluid, and, owing to the distressing results of unrecognized empyemas, it is imperatively demanded in all doubtful cases. The variability of the physical signs is a striking feature in infants and should always suggest an effusion.

63. **Proctoscopy and Sigmoidoscopy in Infancy.**—In twenty-four cases of infectious diarrhea, Bowditch examined the rectum and sigmoid by inspection. He found that cases of diarrhea in which there is a history of blood in the stools (especially among infants), show signs of inflammation (red, thickened mucous membrane, prominence of the follicles, ulcers of varying types, but no true membranous condition) throughout the sigmoid and rectum, especially during the acute stage of the disease. These lesions seem to vary according to the virulence of the infection as to number and general appearance. They gradually become healed, leaving no signs nor evidence of scar tissue visible to local sigmoidal inspection in life. Bowditch also found that blood and normal intestinal mucous membrane may be present at least in the sigmoid and rectum in cases of fermental diarrhea. Of the severer types of cases, all but two patients received one or more irrigations, three had four, and two received none. No sign of any healthy appearance was found, neither did the mucous membrane of those treated, or those untreated, differ in any appreciable way. Of these cases of milder type, all but two patients received silver nitrate irrigations. Three were given each a single irrigation early in the disease, five had more than two, and at the most, three irrigations. While a gradual improvement was apparent at the end of these repeated irrigations, at no time did the mucous membrane after a single treatment show any distinct betterment.

64. **Acute Lymphatic Leukemia in an Infant.**—The count in his case, which reached 1,330,000, is the highest leukocyte count which Veeder has been able to find on record in lymphatic leukemia in childhood. E. H., female, aged 17 months, was brought to the hospital for a purpuric eruption, which was said to have appeared five days before admission. Practically no history could be obtained. The child had been breast-fed. A swelling of the neck had appeared "some time" before the eruption. The skin was pale and showed a widespread purpuric eruption varying in size from small, bright red petechial spots about pinhead in size, to large subcutaneous extravasations, cyanotic in color, and about the size of a 25-cent piece. The large extravasations were present over the forehead, extensor surface of the forearms, the tibiæ, and over the spines of the lumbar vertebræ; the smaller lesions were most marked over the face, right shoulder and the legs. Pressure over the bones did not produce pain or signs of tenderness. The joints were uninvolved. The mucous membranes of the mouth were pale, but showed numerous points of hemorrhage. The saliva was slightly blood-streaked. The tonsils were large, swollen and red, almost shutting off the mouth cavity from the pharynx. The cervical lymph nodes were enlarged and palpable. They were moderately soft in consistency and about the size of a hickory nut. Pressure over the right side of the neck seemed to cause pain. The axillary and inguinal nodes were both enlarged and distinctly palpable as separate tumors about the size of lima beans.

The interesting feature of the case is the blood-examination: hemoglobin, 55 per cent.; erythrocytes, 3,370,000; leukocytes, 1,330,000. The field under the microscope was densely packed with lymphocytes, these being so numerous as practically to obscure everything else. The lymphocytes showed two distinct types, a small and a large cell variety, but between these two extremes there were so many gradations in size that an accurate subdivision of many of the cells into a large or small lymphocyte was impossible. The differential count (1,000 cells) was as follows: lymphocytes, 98.5 per cent.; polymorphonuclears, 1.2 per cent., and myelocytes, 0.3 per cent. One nucleated red cell was found during this count.

Providence Medical Journal

January

67 Epidemic Paralysis. H. W. Burnett, Providence.
68 Tuberculous Peritonitis. G. A. Matteson, Providence.

Western Canada Medical Journal, Winnipeg

January

69 The Standardizing of Disinfectants. S. Delépine, Manchester, England.
70 Junod's Blood Derivations. G. Werber, Washington, D. C.

Atlanta Journal-Record of Medicine

January

71 Artificial Pneumothorax in Pulmonary Tuberculosis. M. E. Lapham, Highlands, N. C.
72 Digestive Symptoms of Pellagra. J. N. Le Conte, Atlanta
73 Treatment of Anemia by Hydrotherapy. W. L. Secor, Kerville, Texas.
74 Obstetric and Gynecologic Repair of Perineum. R. R. Kime, Atlanta.
75 *Self-Medication. T. B. Rice, Greensboro, N. C.
76 Pathogenesis of Tabes Dorsalis. T. A. Williams, Washington, D. C.

75. **Self-Medication.**—As a remedy for self-medication, the dangers of which are pointed out, Rice suggests that in view of the fact that each state has passed laws regarding the practice of medicine and pharmacy and as these laws were passed primarily for the protection of the people against ignorance and quackery and not for the protection of doctors and druggists, that these should be carried out and so amended and construed by the courts as to eliminate every form of quackery. Druggists should practice pharmacy, not medicine; they should refuse to indorse any patent or proprietary medicine; they should refuse to allow any nostrum to be advertised over their names; they should refuse to distribute booklets setting forth the many wonderful "cures," many of which are indecent and suggestive. Physicians should practice medicine, not pharmacy; they should prescribe, not dispense; they should prescribe drugs, not proprietary remedies, ready prepared under copyrighted names; the U. S. Pharmacopeia should be their guide; they should refuse to be "detailed" with copyright remedies or literature regarding them. The courts should clearly define the practice of medicine and what is meant by practice of pharmacy, and they should deny the right of those who are not duly qualified to practice either or to make a pretense thereto. Ready-made or proprietary remedies carrying directions and claiming to cure or mitigate disease should no longer be held by the courts to be mere merchandise, as the courts cannot regulate the claims made by the manufacturer. This narrow conception of justice allows the manufacturer, who in many instances is neither a physician nor a druggist, to diagnose by mail and practice medicine by wholesale. It allows the seller, regardless of his position in life, moral standard or qualification, to practice both medicine and pharmacy.

Archives of Ophthalmology, New Rochelle, N. Y.

January

77 Relationship of the So-Called Trachoma Bodies to Conjunctival Affections. H. Noguchi and M. Cohen, New York.
78 Occurrence of the Prowazek and Halberstaedter Bodies in the Normal Conjunctiva of Man and Apes. G. Addario, Palermo, Sicily.
79 Cataract Operations and the Preparation of the Surgeon. W. E. McKechnie, Etawah, India.
80 Enlargement of the Blind Spot, an Early Symptom in the Diagnosis of Optic-Nerve Affections, Due to Disease of the Posterior Nasal Accessory Sinuses. J. Van Der Hoeve, Utrecht, Netherlands.

Archives of Internal Medicine, Chicago

January

81 *The Spirilla of Relapsing Fever. H. A. Christian, Boston.
82 *Diphtheria Bacillus-Carriers. H. Page, Manila, P. I.
83 *Study of Streptococci with the Complement-Fixation and Conglutination Reactions. H. F. Swift and W. C. Thro, New York.
84 *Fifty Examinations of Cerebrospinal Fluid with Special Reference to the Cell-Count. A. Bybee, Elgin, Ill., and W. F. Lorenz, Kankakee, Ill.
85 *Schürmann's Color Test for Syphilis. R. G. Owen, Detroit.
86 *Is Hemoglobinuric Fever a Manifestation of Malaria or a Disease *Sui Generis*? C. F. Craig, Washington, D. C.
87 *The Ventilation of Sleeping Cars. T. R. Crowder, Chicago.

81. **Spirilla of Relapsing Fever.**—In the circulating blood of a patient suffering from relapsing fever, Christian found spirilla on the second and third days of a three-day paroxysm of fever. These spirilla were inoculated successfully into monkeys and white rats. Both failed to show recurrence of the organism after the first infection. The lesion produced in monkeys consists of an accumulation of polynuclear leukocytes and endothelial cells in the sinusoids of the liver, and a focal infiltration of the spleen with polynuclear leukocytes. The spirilla appear to be removed from the circulation in the monkey by phagocytosis, to a slight extent in the liver, more actively in the spleen.

82. **Diphtheria Bacillus-Carriers.**—Pure culture of *Staphylococcus pyogenes aureus* sprayed in throats has, in seven cases, now reported, destroyed the Klebs-Loeffler bacilli in carriers in from forty-eight to seventy-two hours. Page adds one case and says that this method of treatment is harmless and should be used in all cases of carriers. It has been found useful immediately after convalescence from an acute attack. He suggests that it is probable that its use during an acute attack of diphtheria would be successful, but as yet it is inadvisable to attempt its use in any save mild acute cases. He also urges that a sanitary survey should be made after every diphtheria outbreak to eliminate carriers, whether they be human or animal. By animal inoculation a distinction should be made between the virulent and the "morphologic" carrier. Four negative daily cultures are necessary before quarantine is raised. Treatment of carriers has heretofore proven useless. Local measures, while necessary, fail to influence the virulence or duration of the bacilli. Antitoxin has no influence on the bacillus in a carrier.

83. **Study of Streptococci with the Complement-Fixation and Conglutination Reactions.**—The conglutination reaction in the authors' hands has not proved of much greater value in the differentiation of various strains of streptococci than the agglutination reaction. Although the conglutination and agglutination reactions are specific for streptococci, they are not specific for individual strains of streptococci. Their experiments, however, are not sufficient in number for definite conclusions on this point. They found that the best extract of streptococci for use as antigen in the complement-fixation test is that prepared by drying the washed organisms, grinding and shaking them for twenty-four hours. Immune bodies, specific for different strains of streptococci, can be demonstrated by means of the complement-fixation test. Swift and Thro suggest that it is possible by the use of this test we have a means of studying specific streptococcus infections.

84. **Examination of Cerebrospinal Fluid.**—In view of the fact that the technic employed for the examination of the cerebrospinal fluid varies greatly in the hands of the individual investigator and gives, in consequence, such discordant results, Bybee and Lorenz endeavored to develop a technic which shall have the advantages of uniformity and reliability, together with the simplicity requisite for ordinary bedside employment. Their technic differs from that of Fuchs and Rosenthal in that they employ a red-cell pipette, drawing the original stain to 0.7, and wiping away the excess of stain from the point of the pipette. The stain is then drawn up into the diluting-chamber in such a manner that it evenly coats the inner wall. They hold that the French or centrifuge method for examination of the cells in the cerebrospinal fluid is not reliable for numerous reasons: 1. The cells are not always entirely thrown down, even by prolonged centrifugation. 2. It seems probable that this failure may be due to the difference in density of cells and fluid being insufficient at all times. 3. It is impossible to collect in a pipette all the cells which are thrown down. 4. The centrifugation results in clumping of the cells, which cannot be entirely overcome. This method requires the use of a centrifuge and is consequently not clinical. The counting-chamber method, when modified so that the red blood cells do not stain, presents none of the above objections. It requires only the ordinary blood-counting apparatus. The amount of fluid necessary for the counting-chamber method is at a minimum. In their hands all clinically and cytologically positive cases of general paralysis of the insane gave a positive cell-chamber count. With the French method only sixteen positive results were obtained and twenty-four negative results. In connection with this point they call attention to the frequent statement in the literature that a single puncture is not reliable as a negative result, and that in none of their cases was more than one puncture used. Differential cell counts at present give but little additional information, except in so far as they distinguish a lymphocytosis from a leukocytosis. While this paper deals more especially with the cytologic problems, it is worth noting that Noguchi's butyric acid test gave thirty-eight positive results in forty clinically and cytologically positive cases of general paralysis of the insane.

85. **Schürmann's Color Test for Syphilis.**—While, in Owen's opinion a simple color test would be an ideal one, the method of Schürmann does not provide us with such a test.

86. **Hemoglobinuric Fever.**—That hemoglobinuric fever is not due to malaria Craig believes to be proved by its geographic distribution; by the fact that it occurs in individuals who have never suffered from malaria; and by the fact that, in many instances, neither before, during, nor after an attack can plasmodia be demonstrated in the blood; while even at

autopsy no trace of malaria can be found. That the disease is not due to quinin is proved by the fact that it occurs in individuals who have never taken the drug, and that in many regions where the drug is extensively used the disease is unknown. For the following reasons Craig believes that it is due to a specific organism: its geographic distribution; its numerical disproportion to malaria wherever it occurs; its occurrence in epidemics; the character of the pathologic lesions; its symptomatology; the lack of conclusive evidence that it is due to malaria; and its analogy with other well-known infectious diseases. He also calls attention to the peculiar relation that this disease apparently bears to the hemoglobinuric fever of cattle and to piroplasma infection in general.

87. **Ventilation of Sleeping-Cars.**—Even under the older applied principles of ventilation, the air-supply of sleeping-cars, as determined in Crowder's study, is ample under nearly all conditions. The average carbon dioxid in the air of running cars falls well within the limits of contamination permitted by the earlier investigators, and it is relatively rare that the individual observations show more than 10 parts in 10,000. In the light of the newer conceptions, which have as yet been applied in practice only to a very limited extent, this air-supply is ample under all conditions observed. No danger to health is to be apprehended under the conditions ordinarily obtaining even in still cars. They are occupied only for short periods as a rule and are not uncomfortable if kept cool. It would seem that the results obtained by the type of exhaust ventilator investigated by Crowder, which is now a part of the standard equipment of Pullman cars, are entirely adequate to meet the demands of hygiene, and that those difficulties and discomforts which do sometimes arise are due to other causes than lack of a sufficient amount of fresh air or to excessive vitiation. It is extremely unlikely that increasing the air-supply, which now amounts to from six to ten or more times the cubic content of the car each hour, and must maintain considerable motion of the atmosphere, would aid in any other way than by making overheating more difficult to bring about. Overheating is the paramount evil. It is the thing chiefly to be guarded against in the attempt to maintain comfort and good hygiene.

Annals of Ophthalmology, St. Louis

January

88 Sloughing Corneæ in Infants. S. Stephenson, London.
89 Hemichorea, Hemiataxia, Hemiparesis and Dilated Pupil, Probably Due to a Lesion Near the Nucleus Ruber. C. K. Mills, Philadelphia.
90 Chronic Cyanosis with Polycythemia. W. R. Parker and G. Slocum, Detroit.
91 *Some Unusual Ophthalmic Cases. C. T. Veasey, Spokane, Wash.
92 Leukosarcoma of the Iris Removed by Iridectomy and Useful Vision Retained. J. Thorington, Philadelphia.
93 Marginal Degeneration of the Cornea. W. Zentmayer, Philadelphia.

91. **Unusual Ophthalmic Cases.**—Veasey reports five cases: (1) reading with the lines placed vertically; (2) papilloma of the corneal limbus; (3) papilloma of the lacrimal caruncle and conjunctiva; (4) sarcoma of the chorioid with marked orbital cellulitis; (5) metastatic panophthalmitis from a pelvic abscess.

Buffalo Medical Journal

February

94 Mutual Relations of Physician and Layman. G. W. Wende, Buffalo.
95 What is the Physician's Duty in the Prevention of Moral and Social Diseases? F. W. Sears, Syracuse.
96 *The Construction of a Vagina. W. L. Wallace, Syracuse.

96. **The Construction of a Vagina.**—Wallace reports three cases. In one of these he pulled the mucous membrane of the vulva up to the cul-de-sac of Douglas, splitting the labia minora, making them single instead of double layers, and thereby getting longer mucous flaps. This made a vagina of mucous membrane the size and length of two fingers. In the other two cases he used intestine to make a vagina after the method of Baldwin. Hereafter, in using the ileum for the vagina, instead of bringing down the middle of the gut, stitching it to the vulva and opening it, after the manner of Baldwin, Wallace says he would bring down the opened ends of the gut and sew them to the vulva, leaving the closed end of the folded gut to form the roof instead of the entrance to the new vagina. This would save the necessity of closing and turning in the two ends, which procedure takes time and also uses up nearly an inch in length at each end. It also saves the necessity of opening the folded end to sew it to the vulva. This method would also make a smooth roof for the new vagina and would make the application of the clamp much easier, as the full length of the septum would be cut out. The intestine should be drawn down until the mesentery is taut, so that the new vagina will not prolapse; and any surplus mucous membrane should be cut away. Of course the mesentery must not be pulled down enough to interfere with the blood supply. Instead of using a Murphy button anastomosis of the divided sigmoid, Wallace prefers to tie a very large tube into the proximal end and then slightly invaginate the proximal into the distal portion of the gut, using fine silk to close the joint, and approximate the peritoneum, as suggested by Mayo, and as since used by Wallace in similar cases.

Journal of Advanced Therapeutics, New York

January

97 *Treatment of Inflammation Not Complicated or Caused by Infection. W. B. Snow, New York.
98 *Splenic Leukemia Successfully Treated by Modern Methods. C. W. Strobell, Rutland, Vt.
99 *Report of the Committee on Standardization. W. B. Snow, New York.
100 Roentgen-Ray Tubes. B. E. Baker, Boston.
101 Florida as a Health Resort. W. L. Secor, St. Petersburg, Fla.

97, 98, 99. Abstracted in THE JOURNAL, Oct. 1, 1910, p. 1223.

Kentucky Medical Journal, Bowling Green

February 1

102 *Acute Nephritis. W. R. Thompson, Mount Sterling.
103 *Chronic Nephritis. S. L. Beard, Shelbyville.
104 Pyelonephritis. O. P. Nuckols, Louisville.
105 Remote Sequelæ in Mistreated Syphilis. J. T. Windell, Louisville.
106 *Acute Gastro-Intestinal Infection in Infants. J. M. Rees, Cynthiana.
107 Prophylaxis and Treatment of Scarlet Fever. J. S. Lock, Barbourville.
108 Typhoid in Children. F. D. Cartwright, Bowling Green.
109 Measles. T. A. Frazer, Marion.
110 Prophylaxis and Treatment of Pneumonia. J. C. S. Brice, Flemingsburg.
111 The Finger as an Aid in Complete Enucleation of Tonsil. W. J. Thomasson, Newport.
112 Importance of a Correct Diagnosis. D. G. Simmons, Adairville.
113 Intestinal Obstruction. M. S. Allen, Stithton.
114 The Tubercle of Tuberculosis: Its Pathologic Significance in the Physical Organization and Relation to the Bacillus Tuberculosis. J. Glahn, Owensboro.
115 Puerperal Eclampsia. U. V. Williams, Frankfort.
116 Diseased Tonsils and Their Complete Removal by Tonsillectomy. D. M. Griffith, Owensboro.

102, 103, 106. Abstracted in THE JOURNAL, Oct. 22, 1910, pp. 1493 and 1495.

Journal of the Minnesota State Medical Association and the Northwestern Lancet, Minneapolis

February 1

117 Problems of Medical Education in Minnesota. S. M. White, Minneapolis.
118 Management of the Puerperium. F. Leavitt, St. Paul.
119 Death Certificates: A Review of the Subject as Viewed from the Post-Mortem Room. H. E. Robertson, Minneapolis.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

January 28

1 History of Yellow Fever in West Africa. R. Boyce.
2 *Puerperal Eclampsia: A Comparison with Venom Poison and a Suggestion for Treatment. H. L. Murray.
3 Scopolamin-Morphin Anesthesia in Labor. J. R. Freeland and B. A. H. Solomons.
4 *Cesarean Section for Dystocia Due to Ventrofixation of the Uterus. A. Routh.
5 Absence of the Fallopian Tubes and of Menstruation, Associated with Recurrent Peritonitis. W. G. Spencer.
6 Prolapse of the Inverted Uterus During Labor. A. S. Hendrie.
7 Treatment of Cancer of the Rectum. H. Cripps.
8 *Treatment of Rheumatoid Arthritis by Vaccines. G. A. Bannatyne and J. Lindsay.
9 The Proposed Coroner's Bill. J. Griffiths.
10 The Pitfalls of "Mental Tests." C. S. Myers.

2. **Puerperal Eclampsia.**—Believing that the pregnant woman is protecting herself against a poison directly comparable to a venom, Murray suggests that there may be some therapeutic use for antivenin in eclampsia or the pre-eclamptic state. Judging from its action in snake poisoning, the likelihood of usefulness is very much greater in the latter.

4. **Cesarean Section for Dystocia.**—Routh calls attention to eight of these cases which, he believes, show that where ventrofixation causes dystocia, living children can be delivered with small risk to the mother by Cesarean section, after other attempts at delivery have been made, provided that antiseptic precautions have been carefully adopted. The only death was caused by a bowel complication present before the operation.

8. **Vaccines in Rheumatoid Arthritis.**—In two cases cited by Bannatyne and Lindsay, the results of serotherapy have been so satisfactory that they are encouraged to hope that in vaccines a cure may be found for many acute cases of rheumatoid arthritis. In both cases the micro-organisms were obtained from blood taken from veins of the antecubital fossa of the arm, after every precaution had been taken to ensure the impossibility of skin contamination. The media on which the cultures were obtained was blood-agar, and during the period of growth the incubator registered 35 C. In one case a growth was observed on the third evening, the appearance of the colonies being that of semi-transparent points. The appearance microscopically was that of a diplococcus, aggregated in clusters. The stain was retained after employing Gram's method. In the second case, a growth was observed on the second evening, in the form of single colonies less transparent than in the first case. These colonies became more abundant twelve hours later. Microscopically, the organism was found to be a micrococcus, arranged in clusters. The microorganisms were Gram-positive.

10. **Pitfalls of "Mental Tests."**—Myers urges extreme caution, at least for the present, in standardizing "mental tests" and in popularizing their use. He believes that in some forms, no doubt, tests can be usefully applied *en masse*—for example, with the object of determining the standard of intellect which a boy of given age should attain in order to class him as suitable or unsuitable to be taught in an "ordinary" or a "special" school. But, he says, such tests are "tests of production," not "mental tests." They determine how much an individual can work, how much he knows—not how he works, how he knows. A man's productivity, of course, is what we want to ascertain in every-day life. We do not care how a man comes to use or to acquire his powers; we are content with a mere dynamometric or other record of his powers. From this aspect, mass experiments must have some value. But this aspect cannot properly be called the psychologic aspect.

Lancet, London

January 28

11 The Hospital Unit in University Work. W. Osler.
12 *Auscultation of Joints. A. E. Garrod.
13 Transperitoneal Cystotomy for Tumor of the Bladder. S. Pringle.
14 *Puerperal Convulsions, or Eclampsia. W. Alexander.
15 The Rôle of Auto-Inoculation in Medicine. C. Riviere.
16 Cerebral Tumor Affecting the Under Surface of the Corpus Callosum and Filling the Right Ventricle. R. T. Williamson.
17 Subluxation of the Knee. J. J. W. Evans.
18 Atonic Dilatation of the Stomach. P. A. Mitchell.
19 Power of Speech in Cut-Throat. D. H. Metha.

12. **Auscultation of Joints.**—Garrod claims for auscultation of joints that this method is capable of affording early warning of troubles in articular structures and sometimes reveals the commencement of disease in joints, which to inspection and palpation appear to be normal, and which may even cause no discomfort to their possessor. Again, the method gives promise of help in the differentiation of articular diseases, and in distinguishing between those in which the cartilages and bones are implicated, and those in which the synovial membranes and soft parts around the joints alone suffer.

14. **Puerperal Convulsions.**—Thirty-nine cases are reported by Alexander: thirty patients were primiparæ and five multiparæ, in three the number of the pregnancy was unknown. In four cases the urine contained only a trace of albumin, and two of these proved fatal. In five cases the fits began before parturition set in; in five cases, during the first stage of labor; in six cases, during the second stage; in one case, in the third stage; in fifteen cases the attacks began postpartum, and in one case, Alexander has no clue to the time of onset. Of the postpartum onset, the times varied from a few minutes after the termination of the labor to as much as eight days after. In only five cases did the fits cease on delivery. Of the thirty-eight cases recorded, the mortality was 34.2 per cent. Alexander believes that the disease is very much on the increase, and that the mortality has increased very much in proportion.

The hastening of delivery was adopted in only seven cases. In five cases forceps were used, and one of these patients was suffering from pneumonia at the time and died from that disease. In one case artificial dilatation of the os and version effected the delivery of a decomposed fetus. The mother died suddenly, a few hours later, with a cardiac clot. In another transverse case the patient recovered after-delivery by version. The delivery was natural in twenty-nine cases. Two deaths occurred in seven cases of operative emptying of the uterus, or 28.5 per cent., and nine deaths in twenty-nine cases in which Nature was not interfered with, or 31 per cent. Routine treatment consisted of purgatives, such as jalap, magnesium sulphate, calomel and croton oil; diaphoretics, such as blanket bath, hot packs, pilocarpin, hot poultices over kidneys, saline diuretics, hot drinks; nerve sedatives, such as bromids, morphin, chloral in varied doses, fomentations to loin, dry cupping over kidneys, venesection of arm, ice to head and thyroid powder, chloroform and oxygen inhalations.

Clinical Journal, London

January 25

20 Surgical Cases Modified by Insurance. G. R. Turner.
21 Vertigo. S. Scott.
22 Cancer of the Rectum. F. C. Wallis.

Medical Press and Circular, London

January 18

23 Mumps and Its Complications. V. Hutinel.
24 *Treatment of Cancer of the Rectum. H. Drummond.
25 *Ehrlich's Salvarsan Treatment and the Biotherapy of Syphilis. L. Jacquet.
26 *Present Position of the Treatment of Plague. J. C. Thomson.

January 25

27 Fibrosclerotic Paranephritis. E. Zuckerkandl.
28 Operative Treatment of Tuberculous Meningitis. A. J. Cleveland.
29 New Points in Urine Analysis. J. B. Smith.
30 Notes on Vision. W. R. MacDermott.

24. **Treatment of Cancer of Rectum.**—The ideal operation, according to Drummond, is one which removes the rectum and the lower iliac colon with the lymphatics, glands, and mesentery, and replaces the rectum by bowels drawn down from above through the anal sphincter. This, however, is seldom possible. In early cases, and with cancer high up without visible or palpable glandular infection, a more limited removal and anastomosis by the invagination method, is Drummond's operation of choice. In the ordinary case, permanent colostomy and an extensive abdomino-perineal operation offers the best chance of permanent success. In stout and muscular subjects, Kraske's operation is less dangerous than this, and the results, for the present, compare with it sufficiently favorably to justify its employment. The simpler perineal operations should be reserved for cases in feeble persons and those in whom the disease is limited to the neighborhood of the anus, or the anal canal. At the same time, or shortly after, the glands of both inguinal regions should be excised. Blood-loss, shock and sepsis may be minimized, and the perineal operation can be more rapidly completed, by leaving hemostatic forceps on the bleeding vessels, and using few or no sutures for the wound. Drummond says that further pathologic information is required, especially as to the direction in which the disease is most likely to spread, before more definite rules can be laid down for the treatment of cancer of the rectum. Colostomy, he declares,

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is never fair treatment of cancer of the rectum, and should be reserved only for cases in which there is definite obstruction or for the relief of fistulous openings.

26. **Treatment of Plague.**—Thomson's remarks are founded on an extensive personal experience of the disease in Hong Kong. Speaking first of the general management of a case of plague, he says that while pneumonic plague is a highly infectious disease requiring the strictest isolation, bubonic and septicemic plague (far commoner than the pneumonic type) is not infectious, and might safely be treated in the wards of general hospitals or in the patients' own homes. When plague prevails, the extermination of rats is of primary importance; the methods of doing so which have proved most efficacious are traps and poisons. During the illness, the disinfection required is very much the same as in a case of typhoid. Nurses should be warned of the possibility of infection through an abrasion of the skin, and any abrasions present ought to be protected by collodion. Alcoholic stimulant (4 oz. of brandy daily) is generally required, and cardiac stimulants, digitalis, strychnin, strophanthus, are constantly required. The disease is essentially an asthenic fever. It is also important to attend to the bladder, as retention of urine is common, and to cleanse the mouth.

According to Thomson there is no really satisfactory specific treatment for plague, and for the most part, symptomatic treatment is an essential feature. As to the specific methods of treating the disease, Thomson relates his experiences with carbolic acid, given in large doses—12 gr. every two hours, or 144 gr. daily. If the drug was pure, carboluria rarely occurred, and when it did, all that was necessary was to intermit a few doses. He has treated a series of 143 patients in this way, with a mortality of 30 per cent. In Hong Kong the mortality of cases in which serotherapy was used was 80 per cent.; in Oporto, 14 per cent.; in Brisbane, 40 per cent. In India, taking selected cases, the mortality had been reduced from 74 to 63 per cent. by the use of the Yersin and Roux serum, and in private cases to 40 per cent. In Hong Kong, Thomson has never had such good results, though employing the same serum. Haffkin's prophylactic is of great value, he asserts, and should be given to nurses and contacts; it prevents the disease, even if given during the inoculation period. The third line of specific treatment is by organotherapy. Epinephrin is said to have reduced the mortality to 37 per cent. in a reported series of cases, and the success was enough to warrant further trial.

British Journal of Children's Diseases, London

January

31 Congenital Obliteration (or Congenital Atresia) of Bile Ducts with Cirrhosis of Liver. F. P. Weber and G. Dorner.
32 Enlargement of the Tubercle of the Tibia. R. C. Elmslie.
33 A Retrospect of Otology, 1910. M. Yearsley.

Journal of Obstetrics and Gynecology of the British Empire, London

January

34 Cesarean Section in the United Kingdom. A. Routh.

Archives Générales de Médecine, Paris

December, LXXXIX, No. 12, pp. 705-746

35 *Subscapular Friction Sounds. (Frottements sous-scapulaires.) M. de Laroquette.
36 *Sarcoma of the Medulla Oblongata. (Sarcomes du bulbe.) O. Claude and E. Chabrol.
37 Twenty-Five Cases of Epidemic Meningitis. R. Voisin and G. Paisseau.

35. **Subscapular Friction Sounds.**—A friction sound or cracking under the scapula when the shoulder is moved has been regarded as a sign of something wrong in the bone or periosteum but Tedeschi, in 1908, called attention to it as a sign of a tuberculous lesion in the lung below, and still more recently Rénon stated that it has considerable diagnostic importance for differentiation of pulmonary tuberculosis. Laroquette has been studying it on an extensive scale, examining 824 different individuals, including 161 with various diseases, mostly tuberculosis, and 43 children. He found the sounds pronounced in 8.2 per cent. of the 620 healthy persons examined; in 18.6 per cent. of the sick, and only once in a child. He also had occasion to examine post mortem several individuals who during life had had the sound very distinct. In his eighty-two cases with positive findings, the sounds were audible on both sides in forty. From this experience he concludes that the sound in itself has absolutely no pathologic importance; it is similar to the cracking sound heard sometimes in other joints as they are moved although the joints are and remain apparently healthy. The sounds are the result of contraction of certain muscles; when the joint is moved passively there is no sound. After the individual's attention is once attracted to the sound he notices it as he moves his shoulder and is liable to grow uneasy about it and imagine sensations in the joint. When the sounds are detected in a person who has never noticed them particularly, the physician should refrain from calling attention to them. The nervous system should be given general treatment if necessary.

36. **A Sarcoma of the Medulla Oblongata.**—At necropsy a sarcoma as large as a walnut was found in the medulla oblongata, entailing inflammation and atrophy of the cerebellum. The main complaints had been difficulty in swallowing and pain in the back of the neck. The first symptoms had been observed four years before. The velum was paralyzed and a sudden attack of dyspnea developed in which the patient succumbed. In a second case, death occurred suddenly after a week or so of symptoms diagnosed in the hospital as cerebrospinal meningitis. In ninety-two cases of tumors in the medulla oblongata on record, they proved to be sarcomas in only seventeen instances. These patients were between the ages of 25 and 40 and were mostly women, and the tumor was primary, without metastasis. Such tumors compress and destroy the nervous elements; they do not diffuse but remain well circumscribed. The first signs of trouble come on abruptly and the syndrome develops by repeated exacerbations, death occurring generally suddenly from action on the cardiorespiratory centers. Secondary hemorrhages are liable to occur in the growth. The profound destruction and successive involvement of the different bulbar nuclei induce a clinical picture very different from that of glioma; this wealth and multiplicity of the symptoms give the clue to the nature of the tumor, no other tumor in the medulla revealing its presence so unmistakably.

Annales de l'Institut Pasteur, Paris

December, XXIV, No. 12, pp. 921-984

38 Preservation of "Soluble Toxins." M. Nicolle and C. Truche.
39 Experimental Research on Tetanus Toxin and Antitoxin. M. Nicolle and H. Mouton.
40 Action of Heat on Antitoxins. M. Nicolle and C. Jouan.
41 Individuality of Cellase and Emulsine. G. Bertrand and A. Compton.
42 *Anaphylaxis After Spinal Serotherapy and Its Prophylaxis. (L'anaphylaxie rachidienne et les moyens de s'en préserver.) A. Besredka and S. Lissofsky.
43 Certain Hematozoa of the Congo. (Trypanosomes, Microfilaires, Leucocytozoaires.) A Lebœuf and Ringenbach.
44 Pyocyanase in Treatment of Anthrax. L. Fortineau.
45 Research on Antispermotoxic Serums. J. G. Fitzgerald.

42. **Prophylaxis of Accidents in Serotherapy.**—Besredka and Lissofsky state that recently in Paris alone there have been ten deaths which they ascribe to injection of antimeningococcus serum into the spinal canal. Hutinel has recently also called attention to four fatalities after intraspinal injection of the serum. Their experimental research has shown, however, that the phenomena of anaphylaxis to which they ascribe these accidents can be prevented by fractioning the serum to be injected. Their experimental research has shown that vaccination with repeated minute doses is borne by the guinea-pigs, while it is rapidly fatal if the vaccine is given in a single dose. They found that every guinea-pig sensitized by subcutaneous injection of a serum reacts with anaphylaxis when a new injection of the same serum is made into the spinal canal. However, there are no signs of anaphylaxis if the serum is fractioned in minute doses, whether administered by way of the skin, peritoneum, spine or veins. This occurs most rapidly with intravenous vaccination and most slowly with the subcutaneous; immunity is obtained with the intravenous route in fifteen minutes, while with the subcutaneous four hours are required. The antianaphylactic immunity thus acquired, after vaccination by the spinal route, does not last over twelve or fifteen days. They describe a number of series of experiments: For instance, a guinea-pig

weighing 420 gm. was vaccinated with 0.5 c.c. of serum injected into the jugular vein. Ten minutes later 0.14 c.c. was injected into the spinal canal. No signs of disturbances were observed although this is a rapidly fatal dose for unvaccinated guinea-pigs. The absolute protection against anaphylaxis was thus complete in ten minutes with the intravenous technic. An untreated animal given an intraspinal injection of the serum is sure to show signs of fatal anaphylaxis if another injection is made.

Presse Médicale, Paris

January 14, XIX, No. 4, pp. 25-40

46 *Dwarfs. (Nanisme et chétivisme.) H. Meige and A. Bauer.
47 The Urine in General Paresis. (Les échanges urinaires chez quelques paralytiques généraux.) H. Labbé and A. Gallais.

46. **Dwarfs.**—Meige and Bauer have been studying dwarf growth which they classify as total, when the individuals are merely well proportioned miniatures of ordinary adults; rachitic, myxedematous and achondroplasic. In the myxedematous type the tendency to dwarf growth can be cured by thyroid treatment, so that the physician may be able to remove the stigma of deformity from such patients.

Revue de Chirurgie, Paris

January, XXXI, No. 1, pp. 1-142

48 Sacrococcygeal Teratoid Tumor: Sixth on Record. (Angiosarcome à type périthélial développé aux dépens de la glande de Luschka.) F. Curtis and R. Le Fort.
49 Skin Grafting by Total Transplantation: Large Flap Without Pedicle: Eleven Cases. (Greffe cutanée par transplantation totale ou lambeau non pédiculé.) W. Dubreuilh and P. Noel.

Semaine Médicale, Paris

January 25, XXXI, No. 4, pp. 37-48

50 Indications and Technic for Anastomosis Between Bile Ducts and Intestines. F. Lejars.

Beiträge zur klinischen Chirurgie, Tübingen

December, LXXI, No. 2, pp. 317-573

51 Surgery of the Prostate. P. Kayser.
52 Typhlitis and Ascending Colitis. G. Pallin.
53 Intestinal Lipoma. Ehrlich.
54 Horizontal Fracture of the Skull. (Zur Kasuistik der Deckelfrakturen des Schädeldaches.) Ehrlich.
55 Otto-Chrobak Deformity of the Pelvis. (Fall von intrapelviner Vorwölbung und centraler Wanderung der Hüftpfanne.) Schertlin.
56 *Varicose Veins in Legs. (Pathogenese und zweckmässigste Behandlung der Krampfadern der unteren Extremitäten.) G. Moro.
57 Survival of Gonococcus in the Prostate. (Beständigkeit des Gonococcus in der Prostata und die klinischen Folgen der Blenorrhagie.) G. Moro.
58 Gastroptosis. G. Moro.
59 Surgery of the Duodenum. E. D. Schumacher.
60 Surgery of the Bronchus. M. Tiegel.
61 Bilious Peritonitis Without Perforation of the Bile Ducts. (Gallige Peritonitis ohne Perforation der Gallenwege.) Schievelbein.

56. **Treatment of Varices on the Legs.**—Moro reports forty-two patients with serious varicose disturbances all entirely cured by operative treatment according to Novaro's technic. This aims to interrupt the pathologic reflux of venous blood from the deep into the superficial veins which is the cause of the trouble. This pathologic reflux may occur solely at the point where the saphena magna empties into the femoral vein, or the intercommunicating veins may be involved in the valvular insufficiency between the deep and the superficial systems of veins. Any operative measure which acts merely on the superficial veins does not attack the real source of the trouble. Resection of the saphena magna at its junction with the femoral vein answered the desired purpose in full in 44 per cent. of his forty-two cases; in the others this operation had to be supplemented by resection of one or more of the intercommunicating veins. He tabulates the details of his cases and reports research on the cadaver which demonstrated that sudden violence was unable to force the valves to a point to induce varices; long-continued action of the injurious influences was necessary for this. He concludes his article by urging prompt intervention without waiting for the varicose disturbances to become very pronounced. In the early stages the Trendelenburg method of resecting the saphena magna at its junction with the femoral vein will cure the tendency permanently and prevent extension of the trouble to the intercommunicating veins.

Berliner klinische Wochenschrift

January 16, XLVIII, No. 3, pp. 101-152

62 *Polycythemia. R. Staehelin.
63 *Dietetic Treatment of Cardiovascular and Kidney Disturbances. (Karellkur, Oertelkur, Widal-Strausskur.) A. Magnus-Levy.
64 *Venesection and Saline Infusion in Treatment of Skin Disease. (Anwendung von Aderlass und Kochsalzinfusion bei der Behandlung von Hautkrankheiten.) C. Bruck.
65 *Landry's Paralysis. G. C. Bolten.
66 *Anaphylaxis After Serotherapy. E. Allard.
67 Improved Antiformin Technic for Determination of Tubercle Bacillus. (Ergänzung der Antiforminmethode zur Anreicherung der Tuberkelbacillen.) Lorenz.
68 *Tryptophan Test of Gastric Cancer. (Zur Diagnose des Magencarcinoms mittels der Fischer-Neubauer'schen Methode der Spaltung des Glycyltryptophans.) H. Ley.
69 Radiology of the Stomach. (Ein Wort über den Wismutmagen.) B. Stiller.

62. **Polycythemia.**—Staehelin reports that he has encountered seven pure cases of polycythemia with abnormally high blood-pressure and four others complicated with emphysema, heart defect, arteriosclerosis or nephritis—all in the course of one year. There was a history of syphilis in only one case. Permanent improvement or cure was not observed in any instance. He tabulates the various details for comparison and states that differentiation has not been of much use so far as treatment is concerned, as no measures gave permanent benefit, but yet differentiation is important on account of the prognosis. This is much more unfavorable than for neurasthenia, with which the disturbances might be confounded, or the patient might be accused of exaggeration or malingering. In the severe cases all the visible veins are turgid and the skin and mucosa are a cyanotic red, redder than with cyanosis and emphysema. The majority of the patients looked like healthy persons just after a hearty meal or severe muscular exercise. In the milder cases the patients' complaints had invariably been ascribed to neurasthenia.

63. **Dietetic Treatment of Kidney and Heart Disease.**—Levy regards an exclusively milk diet as essentially a salt-poor diet, but he warns that large amounts of milk contain appreciable quantities of salt. He gives a number of examples to show the great efficacy of prolonged prohibition of salt in treatment of severe parenchymatous nephritis with rebellious dropsy; two such patients had previously been systematically treated for six months with all other measures without improvement. He then put them on a mixed diet free from salt and in two months the dropsy had vanished. During this time one patient eliminated 300 gm. of salt; at first the kidney had not been permeable for salt, but in the course of the three weeks in which the kidney had been relieved of the task of salt elimination, it recuperated so that it eliminated constantly more and more, accompanied by the water to hold it in solution, and by the second month this patient's weight had declined by 66 pounds. This patient had not taken over 2 or 3 gm. of salt daily in the food during this period. If the restriction had been less severe and less systematically carried out, so that 5 or 6 gm. of salt a day had been permitted, the patient probably would never have been relieved of the dropsy. These cases not only emphasize the efficacy of the salt-poor diet after failure of all other measures, but they show the long course of the treatment necessary. Kidney patients of this class do not lose the dropsy so fast as patients with heart disease. The salt-poor diet may be valuable also with cirrhosis of the liver and heart disease although the mechanism of its action is different in such cases, the benefit being due to improvement in the conditions in the circulation as the superfluous salt is dropped from the diet. Reduction of the intake of albumin may also prove useful, as it spares the kidneys extra work. Restriction of fluids may prove efficient but only indirectly, as the patients unconsciously limit the intake of food and especially of salty foods, to prevent thirst when they are not allowed to drink water freely.

64. **Venesection and Saline Infusion in Treatment of Skin Diseases.**—Bruck has been treating eight patients with various skin affections by venesection, withdrawing about 250 c.c., following this with intravenous infusion of 500 c.c. of physiologic salt solution, his aim being to wash out the toxins in the blood which he regards as responsible for the skin disease. The effect was favorable in generalized pruritus, urticaria, erythema multiforme with effusion, and herpetiform dermatitis; no effect was observed in psoriasis and in a case of

diffuse eczema. This "lavage of the blood" not only washes out toxins but stimulates the blood-producing organs, and he thinks that it is liable to prove useful in a number of other skin affections in which the action of toxins may be assumed as a factor.

65. **Landry's Paralysis.**—Bolten reports two cases of typical paralysis of the Landry type, both confirming the assumption that the paralysis is the result of intoxication of the spinal cord, the action of the toxin interfering with the functioning of the spinal and bulbar centers, while it is not sufficient to be actually destructive. The toxins seem to leave the sensory neuron intact and merely to check motor functioning. Treatment of one patient on this hypothesis resulted in a complete cure. The aim was to substitute the cerebrospinal fluid by a non-toxic fluid; this was accomplished by withdrawing small amounts of the spinal fluid and replacing it with the same amount of physiologic salt solution. This was done six times in the course of eight days in the case reported —a total of 600 c.c. of spinal fluid being withdrawn and 540 c.c. of a salt solution being injected. The patient was a previously healthy young man, but for days the severe bulbar symptoms, extensive bronchitis and total paralysis of the diaphragm, vocal cords and muscles of swallowing rendered the prognosis very grave. The paralysis subsided in the various muscles in reverse order to its development, and the patient was dismissed in good condition after five weeks. In the first case there were signs of severe intestinal autointoxication and transient improvement followed calomel, but the patient died the tenth day.

66. **Serious Disturbances After Preventive Serotherapy.**—Allard remarks that the disturbances known commonly as "serum sickness" have been observed mostly in children and have been comparatively harmless, but he has recently encountered two cases in which almost fatal accidents developed after a preventive injection of antianthrax serum from a sheep or antitetanus horse serum. Both patients were physicians; the first had been inoculated with antitoxin for diphtheria seven years before and again a year and a half later. Four years after this he had also been immunized against rabies, being given at this time twenty-one subcutaneous injections of rabbit antirabies virus. He had thus been injected on two occasions with horse serum and then with rabbit virus, and when injected with the sheep serum he responded with typical anaphylactic phenomena just as in a laboratory experiment. The second patient had been given antitoxin treatment for diphtheria in 1898 and again in 1904, and he reacted to the injection of antetanus serum with intense general symptoms a few hours later, recurring in exacerbations during the week; the syndrome finally terminated with the severest attack on the eighth day, after which the pulse and respiration soon returned to normal. Other patients injected at about the same time with the same serum showed no disturbance. Treatment was in both cases by injection of camphor and caffein or drinking strong coffee. The urine was normal in both cases during and after the collapses. The prompt and complete recovery after the severe manifestations was a striking feature of the case. Allard reviews in conclusion what others have written on the subject, and comments that he did not dare, in the serious syndrome observed, to follow Besredka's suggestion to give ether; Besredka found that the animals in experimental anaphylaxis all survived when deeply anesthetized with ether. Allard commends the suggestion to use antitoxins made from different animals and in as concentrated form as possible.

68. **The Tryptophan Test for Gastric Cancer.**—Ley applied this test in twenty cases, all with anacidity, and twelve suggesting cancer. The findings were contradictory; in the four certain cases of cancer a positive reaction was obtained only in two, while the findings were also positive in four cases of simple gastric catarrh.

Correspondenz-Blatt für Schweizer Aerzte, Basel

January 20, XLI, No. 3, pp. 81-112

70 Salvarsan in Syphilis. B. Bloch.
71 *Recurring Hypertrophy of the Prostate After Prostatectomy. E. Lumpert.
72 *Alkaptonuria. A. Oswald.

71. **Recurring Prostatic Obstruction After Prostatectomy.**—The disturbances from enlargement of the prostate in the case reported were practically cured by castration and cure of the cystitis but they returned again after five years, at which time perineal prostatectomy was done. Only a few scraps of the prostate were left, but they proliferated again in the course of three years until fatal uremia resulted. In this as in two other cases previously reported from the same clinic there was no sign of a malignant tendency, the prostate tissue merely seemed to be endowed with an exceptional faculty for pure proliferation. The prostatectomy had been regarded as "total" in all these cases.

72. **Alkaptonuria.**—Oswald has found only sixty cases of alkaptonuria on record and he believes that it often escapes recognition as it must be more frequent than the literature would suggest. He compares it with diabetes and thinks that closer study of alkaptonuria might throw light on diabetes and other constitutional taints. He consequently urges physicians to be on the lookout for it and to report their cases or inform him personally of the details. The anomaly is easily recognized by the brown discoloration of the urine when it is shaken up for two or three seconds in a test-tube after it has been rendered alkaline by addition of solution of sodium or potassium hydroxid. The alkaptonuric urine has also reducing properties, giving the Trommer reaction.

Deutsche medizinische Wochenschrift, Berlin

January 19, XXXVII, No. 3, pp. 97-144

73 Injuries of the Eyeball. (Pathologie und Therapie der Verletzungen des Auges. II.) A. Elschnig.
74 *Artificially Induced Pneumothorax on Both Sides. C. Forlanini.
75 Salvarsan in Malaria. J. Iversen and M. Tuschinski.
76 *Salvarsan in Chorea Minor. J. v. Bokay.
77 Technic for Intravenous Injection of Salvarsan. H. Werner.
78 *Fate of Salvarsan in the Body. A. Bornstein.
79 *Acute Stage of Epidemic Poliomyelitis. Eckert.
80 *Origin and Treatment of Scoliotic Sciatica. E. Plate.
81 Primary Tuberculous Process in Mouth and Jaw. (Primäre Tuberkulose der Mundschleimhaut und des Unterkiefers nach Zahnextraktion.) O. Ehrhardt.
82 Improved Technic for Pubiotomy. (Zur Technik der Hebosteotomie: Die Becklenklammer, ein neues Instrument.) E. Blos.

74. **Double Induced Pneumothorax.**—Forlanini reports two cases in which after one lung had healed under an artificially induced pneumothorax, he applied the same procedure to the other lung, and with equal success. He also adds the histories of two other cases in which conditions would permit the making of a second pneumothorax on this or the other side in case such an operation ever becomes necessary. His cases confirm, he asserts, the reliability of this means of treating pulmonary lesions and its efficacy. Results are naturally better the earlier treatment is applied, and his experiences, he thinks, justify its application even for incipient lesions, Scrupulous care must be exercised to prevent infecting the pleura; if pleurisy develops adhesions form which interfere with the pneumothorax.

76. **Salvarsan in Chorea.**—The case reported is cited as an instance of successful treatment of recurring chorea minor with salvarsan. The patient was a girl of 8, and the severe chorea subsided in the course of the four weeks following the injection; but the patch of necrosis at the site of the subcutaneous injection near the costal arch had shown no signs of healing although it had ceased to spread by the end of this time. It was a little smaller in size than a silver quarter.

78. **Fate of Salvarsan in the Body.**—Bornstein has examined several cadavers of individuals dying of intercurrent affections from two weeks to several months after injection of salvarsan. The findings harmonized with those obtained in his research on rabbits, all showing that the arsenic injected in the form of salvarsan is carried to the liver, kidneys and spleen and is stored up there, not only when it is incorporated by the intravenous route but also when injected into the muscle or subcutaneous tissue. It circulates in the blood only for a comparatively brief time. He found in one cadaver two weeks after injection 6.5 mg. of arsenic in the liver; 3.1 mg. in the kidneys, and 1.8 mg. in the spleen.

79. **Epidemic Poliomyelitis.**—Eckert analyzes nineteen cases of acute poliomyelitis in his charge at Berlin. Besides the paralysis, the pain in the spine and the profuse sweats were

the predominant features. One of the patients had had the same disease in 1903, leaving paralysis of the left leg, requiring later tenotomy. In 1909, the second attack occurred; it left the right leg paralyzed. One child of 8 died the eighth day of the disease which had developed with a fulminating course. He witnessed benefit in one case at least from lumbar puncture. He also made a point of mercurial inunctions during the acute phase, with hot baths and sweats, for their antiphlogistic action; electricity was used after subsidence of the pain in the spine. The Wassermann reaction was constantly negative with the cerebrospinal fluid, but a weak reaction was obtained with the blood in four out of the five cases tested.

80. **Sciatica Complicated with Scoliosis.**—Plate gives twenty-three illustrations of seven patients with chronic sciatica who also presented a greater or less tendency to scoliosis. He analyzes the cause of this tendency and explains it as the result of propagation of the trouble in the root of the sciatic nerve to the lumbar plexus with resulting neuralgia of the sensory nerve fibers in the muscles in the iliac region. On account of this pain these muscles are not normally stretched and in consequence the hip joint is slightly flexed; this shortens the leg and tilts the pelvis, the latter compelling curvature of the spine to maintain the balance of the body. The practical point is that the myalgia of the iliacus and psoas muscles requires treatment along with the sciatica in cases complicated with scoliosis.

Jahrbuch für Kinderheilkunde, Berlin

January, LXXIII, No. 1, pp. 1-130

83 New Clinic for Diseases of Infants and Children. (Strassburgs neue Kinderklinik.) A. Czerny.
84 Restitution of Water After Periods of Indigestion. (Studien zum Mineralstoffwechsel.) H. Koeppe.
85 Retention of Water During Fever. H. Koeppe.
86 Elimination of Phosphates in Urine of Bottle-Fed Infants with and Without Intake of Salt. H. Koeppe.
87 Fever After Intake of Salt. H. Koeppe.
88 Thyroid Not Responsible for Defective Bone and Cartilage Growth. (Ueber die angebliche Bedeutung von Schilddrüsenveränderungen bei Chondrodystrophia foetalis und Osteogenesis imperfecta.) M. Sumita.
89 Water-Content of Blood in Infants. (Wassergehalt des Blutes und sein Verhalten bei den Ernährungsstörungen der Säuglinge.) F. Lust.
90 Value of Albumin in Human Milk. (Zur Bewertung des Albumingehaltes der Frauenmilch.) P. Grosser.

Medizinische Klinik, Berlin

January 15, VII, No. 3, pp. 85-126

91 Treatment of Fractures. (Einrichten gebrochener Knochen.) K. Ewald.
92 Duodenal Ulcer. (Zur Diagnose und Therapie des Duodenalgeschwürs.) A. Kühn.
93 *Treatment of Diphtheria Bacillus-Carriers. (Zur Bekämpfung der Bazillenpersistenz bei Diphtherierekonvaleszenten.) M. Kretschmer.
94 Relations Between Multiple Sclerosis and Hysteria. H. Bendixsohn and Serog. Commenced in No. 2.
95 Herpes Zoster After Intravenous Injection of Salvarsan. L. Meyer.
96 The Cresyl Dyes in Clinical Staining Technic. O. P. Gerber.
97 *Improved Technic for the Antitrypsin Test. (Platten für die Trypsinprobe.) Kniaskof.

93. **Diphtheria Bacillus-Carriers.**—Kretschmer states that the diphtheria bacilli often lurk in the recesses of the tonsils long into convalescence, and he has succeeded in freeing thirteen patients from them by crushing the tonsils, thus squeezing out the plugs and secretions. He did this from one to nine times in the different cases, finally freeing the diphtheria convalescents in this way in from seventeen to thirty-eight days after the commencement of the disease. The results were promptest with the more accessible tonsils, more repetitions being necessary when the tonsils were far back.

97. **The Antitrypsin Test.**—Kniaskof extols the advantages of using gelatin instead of the Loeffler plate. He pours 10 or 15 c.c. of a 10 or 15 per cent. gelatin solution into a Petri dish and after it is hardened, he covers it with a 10 per cent. solution of formalin. After from twelve to twenty-four hours the formalin is poured off and the plate is rinsed for an hour under running water and then dried with blotting paper. Plates thus prepared kept for a long time. The little dimples formed from the eating away by the fluid to be examined, show up better if the gelatin is stained with a few drops of India ink while it is fluid. Scraps of the stained gelatin can also be used to test the fluid by dropping them into it. If the gelatin is dissolved by the action of the trypsin the fluid becomes stained by the India ink. No change of tint is accepted as a positive reaction to the antitrypsin test. [This test was described in THE JOURNAL, July 4, 1908, page 83.]

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

January, XXXIII, No. 1, pp. 1-124

98 *Extraperitoneal Cesarean Section and Pubiotomy. (Extraperitonealer Kaiserschnitt und Heboskeotomie.) A. Döderlein.
99 Laceration and Expulsion of Ring of Vaginal Wall. (Ringförmiger Ausriss der Scheide intra partum.) P. Esau.
100 *The Vaginal Methods in Gynecology. T. Dobbert.
101 *Acute Dilatation of the Stomach. H. Hellendall.
102 Primary Vaginal Cancer. (Zur Technik der Radikaloperation des primären Scheidenkrebses.) H. Peltmann.
103 Ovarian Dermoids. (Zur Aetiologie der Ovarialdermoide und zur Kenntnis der darin vorkommenden Haare.) M. Yamasaki.

98. **Extraperitoneal Cesarean Section and Pubiotomy.**—Döderlein has done Cesarean section by the extraperitoneal route in thirty-two cases by the technic which he describes and illustrates. The extraperitoneal slanting incision in the inguinal region is made with the patient's shoulders very low, but when ready to extract the child, the pelvis is lowered. All except three of the women were safely delivered. One of these succumbed to eclampsia twelve hours later and another was seriously septic when first seen after four days of labor; her child was dead, and another child could not be revived. Paralytic ileus was responsible for the third fatality. The great disadvantage of this technic is that it is more difficult to extract the child, but this is overbalanced by the advantages of not opening into the peritoneum and the less subjective discomfort for the patient. He has performed pubiotomy in fifty-three cases with the loss of only one patient from paralytic ileus. This operation has a mortality to date of six in 321 cases at seven large clinics, that is, 1.8 per cent. The two operations do not compete with but supplement each other. With manifest infection both are contra-indicated.

100. **Vaginal Methods for Gynecology.**—Dobbert reviews his experience with the vaginal technic at St. Petersburg with or without supplementary laparotomy. The lesson taught, he says, is that the rational combination of the vaginal and abdominal methods is the technic for the future.

101. **Acute Dilatation of the Stomach.**—Hellendall reports four recoveries, that is, 53.54 per cent. of his total material. He has compiled 140 cases from the literature, including eighty-six in which the dilatation followed an operation. The list includes thirty-nine cases of dilatation of the stomach after gynecologic operations and twelve after gall-stone operations. An important symptom is the explosive vomiting with long intervals of comparative well being; the stomach region protrudes while the rest of the abdomen is not distended nor rigid. He ascribes the trouble in one of his cases to propagation of an infectious process in the small pelvis to the stomach wall, entailing atony. In a second case the dilatation was the result of accumulation of gases and they escaped as the tube was introduced; there was no abdominal infection in this case. In another case the vomiting was more like regurgitation, the mouth filling at brief intervals and the patient merely spitting out the fluid. The rapid pulse and difficulty in breathing are the main symptoms. In three of his cases the history was suspicious of old gastric ulcer. The dilatation may be primary or secondary; treatment should aim to tone up the stomach walls and to relieve it of its accumulated contents. It is especially important to repeat the gastric lavage at the moment when the paralyzed stomach begins to become distended again. The most certain prophylaxis of trouble is prevention of great distention of the upper abdomen, keeping up the patient's strength with nutrient enemas, saline infusion and subcutaneous injections of camphor or sugar solution. Desguin recommends specific serotherapy when infection is responsible for the dilatation. If the lavage of the stomach does not remedy conditions, the patient should be placed in the ventral decubitus to act on the occlusion of the duodenum probably responsible for the symptoms. Schnitzler has cured patients in this way. Bäumler commends the knee-chest position but notwithstanding the twenty successful cases on record in which this has been done, some writers regard it as dangerous—Borchardt has

reported a fulminating aggravation of the disturbances. Special care is necessary for patients after laparotomy, and Hellendall thought that one of his patients was injured rather than benefited by the position treatment.

Münchener medizinische Wochenschrift

January 17, LVIII, No. 3, pp. 121-176

104 Determination of Amebas. T. v. Wasielewski.
105 Active Substances in the Uterus and Ovaries. G. Schickele.
106 *Ear Conditions in Syphilitics After Administration of Salvarsan. O. Beck.
107 *Prognosis of Puerperal Psychoses. P. Jolly.
108 Functioning of the Pyloric Sphincter After Experimental Cross Section of Stomach. (Die motorische Funktion des Sphinkter pylori und des Antrum pylori beim Hunde nach der queren Durchtrennung des Magens.) M. Kirschner and E. Mangold.
109 *Further Experiences in Influencing Shape of Skull in Young Children. (Willkürliche Beeinflussung der Form des kindlichen Schädels.) G. Walcher.
110 Transmission of Hypersusceptibility to Antipyrin to Guinea-Pigs. (Uebertragung von Antipyrinüberempfindlichkeit auf Meerschweinchen.) E. Klausner.
111 Improved Technic for Hemostasis in Operations on the Skull. F. Berndt.
112 Advantages of Sterilization with Tincture of Iodin. (Die moderne Jodpinselung, sowie über deren weiteres Anwendungsgebiet.) A. Hofmann.
113 Discoloration of Urine After Eating Mushrooms. (Harnverfärbung nach Schwammegenuss.) A. v. Notthafft.
114 *Apocynum in Chronic Cardiac Insufficiency. G. Fehsenfeld.
115 Scientific Medicine and Its Opponents. (Die wissenschaftliche Heilkunde und ihre Widersacher.) O. P. Neumann.

106. **Otologic Findings After Injection of Salvarsan.**—Beck has examined over a hundred syphilitics after salvarsan treatment; the findings confirm the fact that changes in the internal ear may be observed after taking the drug. All the patients examined had been referred to the university otologic clinic in charge of Urbantschitsch, on account of complaints in regard to their ears. In one case an otitis media, rebellious to all treatment for several months, healed completely nine days after injection of the salvarsan. In three other cases both the labyrinth and vestibule were evidently affected, the symptoms not coming on until five, seven and nine weeks after the injection of salvarsan; the Wassermann reaction was negative. None of these patients had ever had attention attracted to the ears before. There had been little change for the better in these patients during the three weeks to date of writing. The syndrome in one case was that of typical Menièreiform cerebral polyneuritis. In another case the vestibular nerve was alone affected without any subjective vestibular symptoms and there has been no change to date; the symptoms developed four months after the injection of the salvarsan and have remained unmodified to date. Beck thinks that this case speaks for a toxic action of the drug on the vestibular nervous apparatus similar to that which Rothig found in mice after treatment with arsacetin. Symptoms like those presented by this patient have been observed in untreated syphilis, but they almost invariably show a decided tendency to retrogression while in the case reported they have persisted. He knows, however, of a similar persisting syndrome in a case in which no salvarsan had been given. He adds that ear affections in untreated syphilis are comparatively rare while they have become unusually common since the introduction of salvarsan. The syndrome observed in his cases was like that in Rille's three patients developing over ten and twelve weeks after the injection [mentioned in THE JOURNAL, January 28, page 311]. Beck thinks it probable that persons whose ears are not entirely intact before taking the salvarsan are more liable to develop these nervous symptoms in the organ of hearing.

107. **Prognosis of Puerperal Psychoses.**—Jolly has been able to trace to date, after an interval of ten years at least, seventy-nine patients with puerperal psychoses at the Halle university clinic for nervous and mental diseases, 1887-1900. Complete recovery was observed only in 46 per cent. with slight change in character in an additional 13 per cent. In twenty-six of the seventy-nine there was recurrence of the psychoses—in fifteen in connection with other pregnancies. Only two of the nine patients recovered whose psychosis developed during pregnancy; twenty-nine of the fifty-five with true puerperal psychoses, and five of the fifteen whose psychoses developed during lactation. Six of the seven patients with mania recovered completely; the other patient died. Half of the six patients with catatonia developed dementia later, one after an interval of eight years of health. The best outcome was in the twenty-eight cases of amentia, complete recovery following in nineteen after an interval ranging from five weeks to eighteen months, and complete recovery in two others after an intercurrent recurrence. In four cases the amentia progressed to dementia. The amentia developed almost exclusively during the puerperium. In 25 per cent. of the puerperal cases there had been infection.

109. **Influencing Shape of Skull in Infants.**—THE JOURNAL summarized recently Walcher's views in regard to the necessity for watching over the way an infant lies in order to mould its head into normal shape and outline. Avoidable deviations from normal shape are frequently responsible for traction on important tissues within the skull and resulting brain trouble. He here relates further experiences in this line and the results of position in correcting abnormal tendencies. When deemed necessary to have the child lie on its back, he uses a low crib with high walls which the child cannot see through, and it lies on its back to look up. To keep the child on its side, the crib is made with latticework walls and is placed on a table against the wall, so that the babe has to lie on its side to watch what is going on. The pictures of twins "before and after" show the great differences in the shape of the skull that can be realized by the mere position of the crib and whether the child can look through its walls or not.

114. **Apocynum Cannabinum in Chronic Heart Disease.**—Fehsenfeld reports satisfactory experiences with Canadian hemp in a number of cases of chronic cardiac insufficiency in which digitalis had failed. The action is similar to that of digitalis though not so durable; the hemp extract therefore may prove useful when digitalis is contra-indicated or has worn out its usefulness.

Virchows Archiv, Berlin

January, CCIII, No. 1, pp. 1-160

116 *Tumors of the Hypophysis Region. F. Strada.
117 Cutaneous Fibromatosis with Hypernephroma. (Fall von multiplen Hautfibromen mit Nebennierengeschwulst.) K. Kawashima.
118 *Primary Cancer of the Liver. (Leberkrebs.) M. Goldzieher and Z. v. Bokay.
119 Patches of Ossification in the Skin: Six Cases. (Heterotope Knochenbildungen in der Haut.) M. Strassberg.

116. **Tumors in Hypophysis Region.**—Strada gives the necropsy findings in a case of tumor in the hypophysis region in a girl of 19 with a tendency to obesity. He also reviews the thirty-one cases of the kind on record, tabulating the findings for comparison and discussing the clinical manifestations with a tumor in this region and the connection between the hypophysis and other ductless glands, and the great physiologic importance of the hypophysis in general.

Wiener klinische Wochenschrift, Vienna

January 19, XXIV, No. 3, pp. 83-114

120 *Salvarsan in Syphilis. S. Ehrmann.
121 *Radiologic Research on Absorption of Mercury and Salvarsan. K. Ullmann and M. Haudek.
122 *Reliability of Meiostagmin and Hemolytic Tests of Gastro-Intestinal Cancer. G. Kelling.
123 *Adhesive Plaster Garter for Varicose Ulcers. (Behandlung des Ulcus cruris varicosum mittels Pflasterstrumpfbandes.) K. Büdinger.
124 *Improved Technic for Electrolytic Depilation. S. Weidenfeld.
125 Unreliability of Mayerhofer's Method for Differential Diagnosis of Cerebrospinal Fluid. G. Simon.

120. **Salvarsan in Syphilis.**—Ehrmann has given this drug to eighty syphilitics in the last five months and he has noticed that the syphilids which develop thereafter differed from those usually observed at the stage of the disease involved and to such an extent as to suggest that the organism was modified in some way by the medication. In one case toxic action on the organ of hearing was manifest, the trouble in the auditory nerve developing in the fourth month of the disease, two months after injection of salvarsan which had been followed by sloughing at the point of injection. Improvement followed excision of the gangrenous mass; in 5.69 gm. of the gangrenous tissue he recovered 0.0032 gm. arsenic and he thinks it probable that in the gangrenous tissue some chemical transformation of the drug had occurred rendering it more toxic. He had two syphilitic patients in former years who became hard of hearing, with tinnitus, under mercurial treat-

ment alone, but under continued intermittent mercurial treatment these symptoms finally subsided. He ascribes the disturbances in the ear in part to the Herxheimer reaction, in part to the syphilitic process itself, and in part to the direct action of the mercury or salvarsan, but believes that it is more liable to occur in the cases with local infiltration or gangrene on account of the possible chemical transformation of the salvarsan in tissues of this kind. Abuse of tobacco or other factor causing a predisposition on the part of the auditory nerve is liable to cooperate in the production of such symptoms.

121. **Roentgen-Ray Research on Absorption of Mercury and Salvarsan.**—Ullmann and Haudek report the results of extensive research in this line which emphasize the advantages of fractioning the salvarsan so as to inject it in minute doses at several points at once; only a small proportion of a large dose seems to be completely absorbed and the unabsorbed portion is a menace to the tissues.

122. **Early Diagnosis of Gastro-Intestinal Cancer by Meiostagmin and Hemolytic Reactions.**—Kelling reports distinct positive reactions in 47 per cent. of forty-five patients with cancer tested for the meiostagmin reaction while positive findings were obtained in only three of eighty-five patients with non-malignant affections. The reaction was obtained in some of the cancer cases before a tumor was palpable, testifying to the importance of the test for the diagnosis of incipient cancer. He also applied the hemolytic test with hen blood-corpuscles and obtained a positive reaction in thirty of the forty-five cancer cases, both tests giving positive findings in seventeen of the forty-five patients. In eight of the forty-five cases neither test elicited a positive reaction. It thus proved possible to obtain a positive reaction by one or the other test in 80 per cent. of the forty-five cancer cases, while the reaction was positive in only six of the eighty-five patients with non-malignant affections. [The technic for the meiostagmin test was given in THE JOURNAL, May 28, 1910, page 1790]. Kelling has modified his hemolytic test and commends the later technic, III, as simpler and more reliable. The human serum to be examined is inactivated at 55 C. for half an hour; then 0.5 c.c. is added to 1 c.c. of a 5 per cent. suspension of hen red blood-corpuscles in 0.85 per cent. salt solution. The mixture is set aside for an hour at a temperature of 37 C. and then is rapidly rinsed twice with physiologic salt solution and centrifugated. To the sediment is then added physiologic salt solution to 1.5 c.c. and the whole is well shaken, after which 0.05 c.c. of normal active human serum is then added. The test tubes are then incubated until the control tubes with the inactivated normal serum turn pink. The tubes are then shaken up, centrifugated and titrated. The results are listed according to the percentage of normal hemoglobin, for example, 60 represents 60 per cent. hemoglobin dissolved. He tabulates the parallel findings with the meiostagmin reaction and with the three forms of the hemolytic test as recorded for 130 patients. As the reaction is a biologic one, its failure in 20 per cent. is no more than might be anticipated. A record of 80 per cent. positive reactions with cancer in such a large number of cases confirms the claims of the inventors of the tests as to their specific nature and reliability, while the simplicity of the technics, Kelling adds, places these tests within the reach of all.

123. **Adhesive Plaster Garter in Treatment of Varicose Veins.**—Büdinger winds a few turns of cotton cloth about 10 cm. wide around the leg below the knee. Over this he winds three of four spiral turns of a strip of adhesive plaster about 4 cm. wide, until the plaster forms a band about 6 cm. (nearly 2½ inches) wide. This plaster garter is drawn tight enough to compress the superficial veins but not enough to cause stasis. The constriction is applied of course with the leg elevated and the venous blood stroked back toward the trunk. When the garter works loose enough for the blade of a pair of scissors to be introduced beneath it, it is removed and a new one applied. This is generally necessary about once a week. Varicose ulcers heal rapidly below this garter and it will be found useful, he declares, in all cases in which operative measures are contra-indicated.

124. **Improved Technic for Electrolytic Depilation.**—Weidenfeld saves time by inserting 150 needles in turn and then applying the electric currents all at once.

Zentralblatt für Chirurgie, Leipsic

January 21, XXXVIII, No. 3, pp. 73-104

126 Catgut. (Erfahrungen mit Kuhn's Catgut nebst Bemerkungen zur Technik der Appendektomie.) R. Bertelsmann.
127 Substitution of Phalanges for Metacarpal Bones. (Plastischer Ersatz der Mittelhandknochen durch die Phalangen.) A. Hagentorn.

Zentralblatt für Gynäkologie, Leipsic

January 21, XXXV, No. 3, pp. 97-136

128 *Improved Technic for Pubiotomy. (Einfluss der Beinhaltung auf das Klaffen des durchsägten Beckens und ihre Bedeutung für die Weichteilverletzungen bei Hebosteotomie.) A. Mayer.
129 Fetal Singultus from Contractions of Diaphragm. J. Rothschild.
130 *Vaginal Cesarean Section for Fulminating Pulmonary Edema. J. C. L. Massini.
131 Decapsulation of Kidney in Puerperal Eclampsia. (Ein durch Nierenentkapselung geheilter Fall von puerperaler Eklampsie.) J. C. Reinhardt.
132 *Hyperfunctioning of Ovaries or Testicles as Cause of Rachitis. S. Stocker.

128. **Improved Technic for Pubiotomy.**—Mayer has found that the injuries of the soft parts with pubiotomy are due to the sudden stretching apart of the sawed halves, thus pulling on the soft parts with such a sudden jerk that lesions result. This can be avoided, he states, by sawing the bones with the patient in the Walcher position, with the pendent legs held close together. Only when the legs are raised to the horizontal position do the bones gape. The danger from the sudden gaping of the bones was exemplified in v. Rosthorn's case in which immediately after the sawing of the bones they separated with such traction on the soft parts that a fulminating fatal hemorrhage resulted. The pendent legs should be drawn into the horizontal position only with extreme caution and very gradually, to spare the soft parts all sudden traction.

130. **Vaginal Cesarean Section for Pulmonary Edema.**—Massini knows of only three cases on record like his own, in which vaginal Cesarean section was done to relieve fulminating edema of the lungs. His patient was a multipara of 38, who had had edema, nausea and tendency to dyspnea at night during the first three months of the pregnancy. Fulminating pulmonary edema developed suddenly at the eighth month, unmodified by the usual measures; the patient lay in coma and pulseless for moments at a time. She began to breathe better immediately after the vaginal Cesarean section; the interval between the onset of the intense edema in the lungs and the termination of the operation was scarcely twenty minutes. As the uterus did not contract, the placenta was removed by hand and the interior of the uterus massaged and improvement was soon evident but the coma did not subside until the next day. The child was cyanotic to an extent Massini had never before beheld; it had suffered not only from the lack of intake of oxygen by the mother but also from the fact that the mother's blood had evidently drained the fetus of all its oxygen. The woman was soon convalescent.

132. **Ovarian Hyperfunctioning as Cause of Rachitis.**—Stocker implanted in a two-weeks' calf the ovaries from a healthy cow that had calved once. In a few weeks the calf developed a picture resembling in every respect that of rachitis, while the control calf under identical conditions otherwise was strong and lively. These findings and experimental research suggest that rachitis is due to excessive functioning of the ovaries or testicles and that treatment on these lines might prove effective. It has certainly displayed efficacy, he says, in the one clinical case in which he has applied it to date. The patient was a girl of 17 with pronounced rachitis and pains in the bones. She was given the milk of a castrated cow and in a few days the pains disappeared and she began to increase in stature.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 15, XXXII, No. 7, pp. 67-82

133 *Meningism. E. Cerrano.

January 17, No. 8, pp. 83-90

134 Experimental Syphilitic Keratitis. (Sull' inoculabilita dell' ulcera venerea nella cornea del coniglio.) A. Fontana.

133. **Meningism.**—Cerrano comments on the difficulty in distinguishing between actual meningitis and the vague condition which he calls meningism. Lumbar puncture is the criterion, and he reports a case in which everything seemed to indicate acute meningitis except the negative findings in the spinal fluid. The meningism may be due to infectious or toxic causes, or reflex, hysteric or physical; in his case it was traceable to gastro-intestinal auto-intoxication and the convulsions and contractures ceased as the intestinal tract was cleared out.

Policlinico, Rome

January, XVIII, Medical Section No. 1, pp. 1-48

135 Clinical and Post-Mortem Findings in Tardy Hematomyelia from Trauma of the Spinal Cord. E. Tramonti.
136 *Tetragonus Acute Ascending Myelitis. G. Catola.
137 *Influenzal Pleurisy and Peritonitis. G. Ghedini.
138 Primary Multiple Malignant Lymphomas of the Jejunum. F. Fulci. Commenced in preceding number.

136. **Tetragonus Myelitis.**—Catola's patient was a girl of 17 with both gonorrhea and syphilis; three months after the development of the syphilitic eruption she began to have fever, headache and paresis of the legs, blending into total paraplegia of the ascending type, fatal the fifteenth day. The findings in the spinal cord were those characteristic of acute poliomyelitis but the symptoms had been more those of Landry's paralysis. A tetragonus in pure cultures was obtained from the blood and cerebrospinal fluid, and this germ was evidently responsible, he thinks, for the syndrome observed.

137. **Influenzal Pleurisy and Peritonitis.**—Ghedini summarizes fifty-two articles on this subject which he has found in the literature and reports seven cases from his own experience, one of which has never been reported before. In three of his cases the influenzal bacillus induced pleurisy with effusion, in one pleurisy without effusion, in one peritonitis with effusion and in two others several of the serous membranes were involved with considerable effusion. Treatment, he states, is that for influenza in general, and is based mainly on quinin. Differentiation is easy if a preceding attack of influenza gives the clue but it may be difficult in the absence of this. The sudden onset, the intensity of the symptoms, the brief course and the favorable outcome distinguish the influenzal from tuberculous pleurisy and peritonitis, while the benign course and lesser tendency to recur differentiate it from streptococcus and staphylococcus processes. Bacteriologic examination of the effusion or blood or serodiagnosis may be necessary in some cases.

Hygiea, Stockholm

December, LXXII, No. 12, pp. 1297-1441

139 Berzelius. (Betraktelser öfver Berzelii verksamhet inom djurkemien.) K. A. H. Morner.
140 Experiences with Tuberculin Cutaneous Reaction. (Tuberkulinympningar enlight v. Pirquets metod utförda å Kronprinsessan Lovisas vårdanstalt.) O. D. Barr.
141 Acute Pancreatitis; Twelve Cases. J. Borelius.
142 *Prognosis of Traumatic Neuroses. J. Billström. Commenced in No. 10.

142. **Traumatic Neuroses.**—Billström gives full summaries of 103 cases of traumatic neuroses, including seven from his own experience. The list is based on the records of several clinics and insurance societies in Sweden. Complete recovery sooner or later was the rule in 90 per cent.; the longer the interval the larger the number of complete cures observed. The local and monosymptomatic forms of hysteric or pure neurasthenic traumatic neuroses give the best prognosis. Suggestion from the physician making the examination, and especially repeated examinations, render the prognosis less favorable, he has found, and he warns that the certificate should never be accessible to the patient. The Swedish insurance societies do not regard traumatic neuroses as entitling to an indemnity and this aids in reducing the tendency to exaggeration of the trouble on the part of the injured. But it is extremely important, Billström emphasizes, to distinguish between the "pure" and the complicated cases of traumatic hysteria. In case of an indemnity, the prognosis is better when it is paid in a lump sum rather than as a pension. Among his seven cases complete recovery followed after a few months or years—the interval being eight years in one case during which time there had been periods of freedom from the neurosis followed by recurrences under emotional stress. One puzzling case proved to be malingering, the home physician sending in an intentionally misleading certificate. One patient is still unduly nervous but for this his chronic alcohol addiction may be responsible.

Ugeskrift for Læger, Copenhagen

January 19, LXXIII, No. 3, pp. 71-100

143 Experiences at Tuberculosis Dispensary. (Erfaringer fra Ribe Amts Tuberkulose-Diagnose Station.) T. Brinch.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

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1. SOME KNOWN AND THREE NEW ENDOPARASITIC TREMATODES FROM AMERICAN FRESH-WATER FISH. By Joseph Goldberger. 2. SOME NEW PARASITIC TREMATODE WORMS OF THE GENUS TELORCHIS. By Joseph Goldberger. 3. A NEW SPECIES OF ATHESMIA (A. Foxi) FROM A MONKEY. By Joseph Goldberger and Charles G. Crane. Hyg. Lab. Bull. 71, U. S. P. H. and M.-H. S., Treasury Department, January, 1911. Paper. Pp. 61, with illustrations. Washington: Government Printing Office, 1911.

THE MODERN MATERIA MEDICA. The Source, Chemical and Physical Properties, Therapeutic Action, Dosage, Antidotes and Incompatibles of All Additions to the Newer Materia Medica That Are Likely to be Called for on Prescriptions, Together with the Name and Address of the Manufacturer or Proprietor, and in the Case of Foreign Articles, of the American Agent. Second Edition. Cloth. Price, $1.25. Pp. 432. New York: The Druggists Circular, 1911.

HANDBOOK OF TREATMENT FOR DISEASES OF THE EYE (OPHTHALMIC THERAPEUTICS). By Dr. Curt Adam, Assistant-Surgeon in the I. University Clinic for Diseases of the Eye, Berlin. With a Preface by Prof. von Michel, Berlin. Translated from the Second German Edition (1910), by William George Sym, M.D., F.R.C.S.Ed., and E. M. Lithgow, M.B., F.R.C.S.Ed. Cloth. Price, $2.50. Pp. 264, with 36 illustrations. New York: Rebman Co., (1911).

DISEASES OF CHILDREN FOR NURSES. Including Infant-Feeding, Therapeutic Measures Employed in Childhood, Treatment for Emergencies, Prophylaxis, Hygiene and Nursing. By Robert S. McCombs, M.D., Assistant Physician to the Dispensary and Instructor of Nurses at the Children's Hospital of Philadelphia. Second Edition. Cloth. Price, $2 net. Pp. 470, with 118 illustrations. Philadelphia: W. B. Saunders Co., 1911.

CASE HISTORIES IN PEDIATRICS. A Collection of Histories of Actual Patients Selected to Illustrate the Diagnosis, Prognosis and Treatment of the Most Important Diseases of Infancy and Childhood. By John L. Morse, A.M., M.D., Assistant Professor of Pediatrics, Harvard Medical School. Cloth. Price, $3. Pp. 314, with illustrations. Boston: W. M. Leonard, 1911.

DISINFECTANTS, THEIR USE AND APPLICATION IN THE PREVENTION OF COMMUNICABLE DISEASES. By Thomas B. McClintic, Passed Assistant Surgeon, U. S. P. H. and M.-H. S. Prepared by Direction of the Surgeon General. Public Health Bull. 42 U. S. P. H. and M.-H. S., Treasury Department, December, 1910. Paper. Pp. 46. Washington: Government Printing Office, 1911.

ATLAS OF MICROSCOPIC DIAGNOSIS IN GYNECOLOGY. With Preface and Explanatory Text by Dr. Rudolf Jolly, Priv. Doc., Chief Physician of the Gynecologic Clinic, University of Berlin. Only authorized English Translation by P. W. Shedd, M.D., New York. Cloth. Price, $5.50. Pp. 192, with 54 illustrations. New York: Rebman Co., (1911).

TENTH ANNUAL REPORT OF THE NEW YORK STATE HOSPITAL, WEST HAVERSTRAW, ROCKLAND COUNTY, N. Y., FOR THE CARE OF CRIPPLED AND DEFORMED CHILDREN. For the Year Ending Sept. 30, 1910. Paper. Pp. 48, with illustrations. Newton M. Shaffer, M.D., Superintendent, 28 E. Thirty-Eighth Street, New York, N. Y., 1910.

DIFFERENTIAL DIAGNOSIS. Presented Through an Analysis of 383 Cases. By Richard C. Cabot, M.D., Assistant Professor of Clinical Medicine, Harvard University Medical School, Boston. Cloth. Price, $5.50 net. Pp. 753, with 195 illustrations. Philadelphia: W. B. Saunders Co., 1911.

OUTLINES OF PSYCHIATRY. By William A. White M.D., Washington, D.C. Nervous and Mental Disease Monograph Series No. 1. Third Edition. Paper. Price, $2.50. Pp. 272, with illustrations. New York: The Journal of Nervous and Mental Disease Publishing Co., 1911.

VORLESUNGEN ÜBER PHYSIOLOGIE. Von Dr. M. von Frey, Professor der Physiologie und Vorstand des physiologischen Instituts an der Universität Würzburg. Second Edition. Cloth. Price, 11 marks. Pp. 397, with 80 illustrations. Berlin: Julius Springer, 1911.

COLLECTED PAPERS BY THE STAFF OF ST. MARY'S HOSPITAL, MAYO CLINIC, ROCHESTER, MINN., 1905-1909. Cloth. Price, $5.50 net. Pp. 668, with 228 illustrations. Philadelphia: W. B. Saunders Co., 1911.

STATE OF NEVADA: BIENNIAL REPORT OF THE ORPHANS' HOME. DIRECTIONS AND REPORT OF THE SUPERINTENDENT. 1909-1910. J. E. McKinnon, Superintendent State Orphans' Home. Paper. Pp. 29. 1911.

THE HEALTHFUL ART OF DANCING. By Luther H. Gulick, M.D., Author of "The Efficient Life," etc. Cloth. Price, $1.40 net. Pp. 273, with illustrations. New York: Doubleday, Page & Co., 1910